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Competition, Pliopoly and Profit

By Fritz Machlup

PART I.

1. Many Sellers and More Sellers. 2. Contrasting the Logical Nature of the Concepts. Pre-Conditions of Perfect Competition. 3. "Industry." 4. Useful Abstractions. 5. Entrance and Exit. 6. Business Profits and Opportunity Costs. 7. Fixed Resources and Normal Yields. 8. Normal Profits, Rents and Excess. 9. Entrepreneurial Ability. 10. "Uncertainty." 11. Inefficiency. 12. Pliopoly.

The recent analysis of competition and the decomposition of various concepts of competition into their different elements have given currency among students of economics to some newly coined terms. The term oligopoly was coined in order to denote the position of the seller who feels that he has a few particular competitors and that he therefore must think, before he acts, of the possible reactions of his rivals. The term polypoly was coined in order to denote the position of the seller who feels that he is only one among so many sellers that his competitors will not notice, and not react upon, his actions. Oligopoly and polypoly were then further subdivided and together with particular "positions of monopoly" were incorporated as tools for the analysis of price and output determination.

Another concept of competition is still in great need of analytical treatment: the concept of "new entry into the industry" or, as one might call it, the concept of "competition from newcomers."

1. MANY SELLERS AND MORE SELLERS

Competition in the sense of more entry into the industry and competition in the sense of many sellers in the industry are frequently confused one with the other, or even understood as one and the same thing. The confusion is understandable. Where there are many sellers already, why should there not easily be more sellers when profits lure? It is of course true that entry into a trade and large numbers in the trade go well together. It would seem strange to think of a polypolistic industry into which entry is not free (although instances of such situations can be found). But, even if a large number of sellers and an unrestricted inflow of sellers seem to be closely correlated, logically the two things are completely different; since

Competition, Pliopoly and Profit

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PART I

1. Many Sellers and More Sellers. 2. Contrasting the Logical Nature of the Concepts. 3. Pre-Conditions of Perfect Competition. 4. "Industry"—a Useful Abstraction. 5. Entrance and Exit. 6. Business Profits and Opportunity Costs. 7. Fixed Resources and Normal Profit. 8. Normal Profits, Entry and Exodus. 9. Entrepreneurial Ability. 10. Uncertainty. 11. Indivisibility. 12. Immobility.

The recent analysis of competition and the decomposition of various concepts of competition into their different elements have given currency among students of economics to some newly coined terms. The term *oligopoly* was coined in order to denote the position of the seller who feels that he has a few particular competitors and that he therefore must think, before he acts, of the possible reactions of his rivals. The term *polypoly* was coined in order to denote the position of the seller who feels that he is only one among so many others that his competitors will not care about, and not react upon, his actions. Oligopoly and polypoly were then further subdivided and several particular "patterns of conduct" were constructed as tools for the analysis of price and output determination.

Another concept of competition is still in great need of analytical treatment: the concept of "easy entry into the industry" or, as one might call it, the concept of "competition from newcomers".

1. MANY SELLERS AND MORE SELLERS

Competition in the sense of easy entry into the industry and competition in the sense of many sellers in the industry are frequently confused one with the other, or even confounded as one and the same thing. The confusion is understandable: where there are *many* sellers already, why should there not easily be *more* sellers when profits lure? In actual practice easy entry into a trade and large numbers in the trade go well together. It would seem strange to think of a polypolistic industry into which entry is not free (though instances of such situations can be found). But even if a large number of sellers and an augmentable number of sellers seem to be closely correlated, logically the two things are completely divorced from each other. And, it will be seen, the concepts of polypoly and easy entry are of very different nature; indeed, they belong to different spheres of thought.

The criterion of polypoly is not simply "large numbers", but it is, instead, a state of mind and a type of behaviour which is usually associated with large numbers of sellers in a market. Polypoly is present if the sellers have certain ideas concerning their position in the market and concerning the saleability of their goods. Thus, a subjective habit or disposition of certain individuals is the essence of the concept of polypoly.

Easy entry, on the other hand, is a probability concept, which is in the first place in the mind of the outside observer, although it may also become an expectation of the sellers themselves. It interests us first in its objective aspect. The observer, viz. the economist, asks himself what probability there is of more producers entering an industry where profits have increased. The judgment of the economist concerning this degree of "competition" (in the sense of probable entry of new firms) is not based on his observation of the existing sellers in the industry, but on his belief that somebody else is likely to hear about, and be attracted by, the handsome profits made in the industry; and on his observation that the setting up of new establishments in the industry can be achieved without too many obstacles and without too much delay. The objective probability (in the judgment of a disinterested observer) of some firms entering a certain field is the essence of this concept of competition.[1]

Competition in this sense of a ready and unhampered movement of entrepreneurial resources in the direction of highest prices and profits has sometimes been termed *free competition*, sometimes *perfect competition*. Both these terms are used also in different meanings. Free competition often refers to freedom from state intervention; perfect competition is often used as a synonym for pure polypoly. An attempt of some American writers to reserve "perfect competition" as a designation for the phenomenon of the ready inflow of firms into profitable industries was not successful; the terminological confusion has persisted. In the succeeding discussion, nevertheless, the expression perfect competition, wherever used, will exclusively denote free and easy entry into the industry. It seems best, however, to coin a new word instead. In order to contrast the notion of *more* sellers entering the market with the notion of *many* sellers in the market, the term *pliopoly* might serve the purpose. (In Greek "more" is *plio-*, "to sell" is *polein*, hence *pliopoly* for the ready appearance of "more sellers" in the market.)

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[1] The problem of subjective *v.* objective judgments is not simple. A sensible distinction between "subjective" and "objective" in this analysis can be made by distinguishing between the status of the persons making a judgment. The judgment of the seller or any other acting person who is the subject of the economist's observation, is always "subjective", whereas the judgment of the observing economist may be called "objective"—as long as he is a disinterested ("scientific") observer only.

2. Contrasting the Logical Nature of the Concepts

The different logical nature of the two concepts of competition, polypoly and pliopoly, can be further elucidated.

The economist who states that polypoly exists in a certain industry believes that a certain state of mind exists on the part of all or most sellers in the industry ; polypoly is the observing economist's picture of a type of (sales) *expectations of the observed sellers* in the industry.[1] The economist who states that pliopoly exists in a certain industry expects that more people will join the industry if profits are high ; pliopoly is here essentially an *expectation of the observing economist.*

The economist who states that polypoly exists in an industry is concerned with *certain* people (however anonymous), namely all or the majority of all sellers in the industry ; the economist expects almost *every one* of them to behave in a certain way. The economist who states that pliopoly exists in an industry is concerned not with certain people, but with quite unknown and undefined ones, namely some few enterprising men or firms who may become newcomers to the industry ; the economist expects *somebody* (or several, but by no means everybody), hitherto outside the industry, to behave in a certain way.

The economist who states that polypoly exists in an industry thinks of a situation present at any *moment of time*, explaining the everyday actions of the sellers. The economist who states that pliopoly exists in an industry thinks of a process expected to take place in the *course of time*, explaining a future situation at the completion of a future process. (Polypoly has thus meaning in the short and the long run ; pliopoly chiefly in the long run.)

The statement that polypoly exists in an industry may, conceivably at least, be subject to empirical verification at any moment of time. One can, for example, imagine that all sellers in the industry are asked, and reliable reports are obtained, about the character of their price and sales expectations, about their feelings toward " competitors ", and about their influence upon their competitors' policies. No such immediate empirical verification is conceivable concerning the statement that pliopoly exists in an industry. If higher selling prices or lower costs increase the profit margin in an industry, the facts which constitute " perfect competition " or pliopoly will not be observable before a considerable period of time will have passed. It may take years until sufficient newcomers will have sufficiently spoiled the good business in the industry.

3. Pre-Conditions of Perfect Competition

The statement about the existence of pliopoly in an industry is really a *forecast* to the effect that any higher profit margins which may arise would quickly disappear because of the emergence of new firms in the industry. Forecasts are usually based on the observation of certain things or circumstances which are considered the necessary and sufficient condition for the predicted events. What are the necessary conditions of pliopoly ?

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[1] It goes without saying that the polypolist state of mind is regularly " conditioned by objective circumstances ". But, as I am showing elsewhere, it is more convenient to select the pattern of thinking rather than the conditioning circumstances as the criterion in the definition of polypoly.

Knowledge of the high profits which can be made in the industry must spread to those outside. (The spreading of such knowledge will frequently be due to officers and employees of the firms operated on so well-paying a basis.) Some of the people or firms who obtain the knowledge of the unusually fine prospects must possess the courage and versatility to turn to a field which might be entirely foreign to them. (It may again be with the help of former employees of existing firms that the new firms overcome the obstacles connected with a lack of specialised experience.) Specialised equipment, tools, materials, skills, and the use of the production processes must be available to the new firms without excessive cost. (Licence fees, leases and royalties for patented machinery and protected processes, refused access to necessary materials or means of transportation, etc., may well prevent new producers from starting business in the lucrative industry.) Plants, machines, tools and organisations must be sufficiently divisible to permit modest additions to the productive capacity of the industry with modest initial investments. (If only large production units are economical and if the initial investment is large, prospects will appear doubtful or, at least, too uncertain.) Money capital needed for the new enterprises must be available at normal cost. (This may not be the case if the initial investment is large or if the risk estimates of investors are exaggerated or if the capital market is closely controlled by opponents of the new ventures.) State interference against new competition in the industry must be absent. (In many countries and fields the authorities try to prevent " overcrowding " or pretend to " protect " the public from " incompetent " or " undesirable elements " by setting up all kinds of barriers against newcomers.) Threat and any sort of restraint by those in the field against would-be intruders must be absent. (The threat of cut-throat competition or of violent actions may help to keep new competitors out.) There are probably other things the presence or absence of which are among the necessary conditions for pliopoly. Each of the conditions may be necessary while none by itself is sufficient ; they must all be satisfied or competition will not be " perfect ".

This very cursory review of the conditions of pliopoly must have convinced us that there is nothing absolute about the whole matter. Spreading information about the high profits was mentioned as the first condition ; how long must there have been higher profits for people to gain the impression that an industry is particularly promising ; how long until the information reaches the right people ? The same question arises with all other conditions ; the advent of the enterprising spirits, the raising of the necessary funds, the overcoming of resistance and red tape, the building up of the production apparatus, etc., how much time may all this take ? From the rise of the profit margins in the industry to the opening of the business by the new firms time must lapse, undoubtedly ; but how much time may lapse for there to be pliopoly ? Where does perfect competition end and imperfect competition begin ? Is one year, a year and a half, two years the right time in which to overcome the "frictions" if competition is to be regarded as perfect ? Or is it three months for hot dog stands but three years for airplane factories ?

The forecasts involved in statements about the existence of pliopoly display, thus, not only the usual vagueness of all predictions and the added vagueness of predictions in the social sciences, but the third-degree vagueness which is connected with an absence of any conventional standard of comparison. Even if there were full agreement about the predicted facts (for instance, that high profits in necktie making would be wiped out within a year because of new firms taking up that line), there would still remain the open question whether or not the case deserved to be called one of perfect competition (pliopoly).

4. "INDUSTRY"—A USEFUL ABSTRACTION

Another instance of arbitrariness in this complex of problems is the definition of "the industry". The use of the expression "entry into the industry" presupposes that there are definite borderlines between one industry and another. Yet we know that there are no such borderlines in reality. Upon what grounds should one decide that a certain group of firms producing a certain set of products constitutes "an industry", distinct and disconnected from other groups ? If it is understood that the products of different firms are generally not identical but different, what degree of similarity or dissimilarity or, more concisely, what degree of substitutability would justify us in speaking of the "same" industry or of "different" industries ?

The economist's concept of the industry is an abstraction with the purpose of limiting the scope of problems of interdependence. In the last analysis, everything in the economy hangs together but not all interdependencies are substantial or even definite as to their direction. It saves time and effort in analysis to assume certain variables as constant or, what often comes to the same thing, to disregard them ; and it is quite legitimate to do so if changes of these variables are negligible for the particular problem or if the direction of the relationship is uncertain. The concept of the industry is nothing but an expedient device of ruling out negligible or uncertain interdependencies.[1]

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[1] Robert Triffin, *Monopolistic Competition and General Equilibrium*, has come to the contrary conclusion. He states (p. 89) : "In the general pure theory of value, the group and the industry are useless concepts."

Interdependencies are conveniently expressed by cross-elasticities of demand and supply (or cost). Cross-elasticity of demand is the ratio which the relative change in the quantity of product sold (at a given price) by *A* bears to the relative change of price charged by *B* (which is causing the change in *A*'s sales). Cross-elasticity of supply is the ratio which the relative change in the quantity of factor available (at a given price) to *A* bears to the relative change of price offered by *B* (which is causing the change in supply to *A*). In other words, these cross-elasticities show the influence of *B*'s price bids and offers upon *A*'s sales and purchases. In some cases another variety of elasticity expressions is preferable, showing the influence of *B*'s quantities (of products sold or of factors bought) upon *A*'s prices (obtainable for a given amount of product or to be paid for a given amount of factors). Using the term cross-elasticity for both types of relationships we might advance the following statement as something approaching a definition of an industry. Firms related through cross-elasticities of the demands for their products or of the supplies of their factors may be said to constitute an " industry " if these cross-elasticities are either so important or so definite that they could not be neglected without impairing the considerations of the firms or the analysis of the economist. (This statement should probably be qualified by the warning that a very wide extension of the " industry ", by taking in too many " repercussions ", may render inapplicable one of the most fruitful tools of industry analysis: mutually independent demand and cost functions. The mutual independence of demand and cost functions—wherever these tools are made use of—would require an upper limit on the extension of the industry concept.[1]

The simultaneous attention to cross-elasticities of demand for the products and cross-elasticities of factor supply or cost makes for more variables, i.e. for a larger extension of the " industry ", than we should like to handle. Hence, it will be better to concentrate either on demand relationships or on cost relationships but not to intertangle them, even if this means that the " industry " from the point of view of product relationship (demand conditions) will usually be another group than the " industry " from the point of view of factor relationship (cost conditions). For the purposes of the present discussion, which deals more with the sales aspect than with the cost aspect of production, we had then better confine ourselves to product relationships.

Related demand may mean substitutability or complementarity of products ; the cross-elasticities of demand will be positive in the case of competing products and negative in the case of complementary products. It is a matter of taste whether or not the relationship of complementarity should be excluded from the definition of the industry. When one speaks, for example, of the " construction industry ", he does take complementarity as the principle of classification. But for the purposes of the present discussion it is more appropriate to include only positive substitutability in the definition of industry. The criterion of belonging to (or entering into) an industry would then be the definitely adverse effect of the increased (or newly started) operations of a firm upon the sales conditions of other firms.

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[1] For this qualification I am indebted to Professor A. Smithies.

This effect need not be of a particular magnitude if only it is definite and certain in its directions. As one may wish to say, the " qualitative effect " is a sufficient criterion if the " quantitative effect " is negligible. The *degree* of change in the sales conditions of, say, agricultural producers which may be caused by the added output of one more farmer is probably not noticeable, but the *direction* of change is certain ; thus they can be said to belong to the same industry.

The effects may be visualised by the firms themselves or only by the economist. Both points of view may be significant. The judgment of the firms will have bearing on problems of oligopoly and monopoly proper. But for the problem of the probability of the appearance of newcomers attracted by profits and the disappearance of the profits because of the competition by the newcomers, it will be the point of view of the economist which determines the " extension " of the " industry ". For different problems one and the same firm will be regarded as belonging to different industries, differing both as to composition and size. " Industry " is merely a short expression which stands here for " all firms whose operations affect one another's sales conditions so definitely that we must not neglect taking account of them ".

5 Entrance and Exit

Whereas perfect competition is often understood to refer to both easy entry into and easy withdrawal from the industry, the term pliopoly refers to entry only. The reason for a conceptual separation of the ease of inflow and the ease of outflow of entrepreneurial resources lies in the lack of correlation between the two movements. In many cases entry of new firms into an industry may be easy (hence, pliopoly present), whereas the disappearance of firms from the industry may be difficult and slow. In other cases the situation may be the opposite.

Cases where pliopoly is absent or very imperfect, whereas withdrawal from the industry can be achieved without delay, may be found in trades where admission is artificially restricted but investments are slight or resources not specialised. A modest sunk investment may be readily relinquished, or non-specialised machines and skills quickly transferred to other fields, when profits fall below normal. State interference or barriers set up by the industry may, however, prevent new firms from entering when supernormal profits would attract them.

More frequent, it seems, is the combination of easy entry with slow exodus. That machinery and other durable equipment is faster constructed than used up is probably the most important reason for this "one-sided perfect competition". The difference between construction period and utilisation period may, thus, account for the fact that supernormal profits often have a shorter life than subnormal profits. Pliopoly wipes out the former. But whereas more sellers may come in thick and fast when business is good, the reduction of the number of sellers in bad times and, hence, the restoration of normal profits in an ailing industry may be a slow (and painful) process.

It should be noted that easy withdrawal of capital from industries is by no means a necessary condition for the existence of pliopoly. Even if no "new" money capital were disposable and the funds sought for a profitable field must first be withdrawn from other industries, slow amortisation does not necessarily impede the financing of the new firms or new ventures of firms hitherto outside the industry. If no very large initial investment is required, the capital can readily be furnished out of the vast sum total of replacement funds currently made available in the economy as a whole, even if the flow of replacement funds in each single industry were thin and slow.

6. Business Profits and Opportunity Costs

Repeatedly have the terms profit and supernormal profit been mentioned in this discussion without an attempt at definition. A digression on the profit concept seems indispensable. Indeed, the concepts of perfect competition and pliopoly cannot be defined without reference to profit. It is profit which is said to attract new competitors to an industry; and it is perfect competition which is said to wipe out profit. Unless the meaning of profit is made clear the concept of pliopoly cannot have any clear meaning.

It is not surprising that profit means different things for the accountant and for the economist since the purposes for which their concepts are used are different. Even within the scope of economic theory the meaning of profit will have to change according to the character of the problem in question.

The accounting or business concept of profit comes nearest to what the economist sometimes calls the residual net income of a firm. The accountant usually starts from "total sales", i.e., the receipts for products and services sold, and deducts direct manufacturing (and distributing) cost, such as wages paid and raw material used up, in order to get what is sometimes called gross profits, sometimes "net earnings from operation" or something of the sort. From this amount the accountant deducts general expenses or overhead costs, such as interest on the firm's debts (bonds or mortgages), rents on leased property or equipment, administrative expenses (executives' salaries), etc., in order to arrive at net profits.[1] (Depreciation of buildings and machinery is sometimes treated as part of manufacturing cost, but more often as part of overhead cost.)

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[1] We neglect here "other income" or "income from other sources", such as interest received from government bonds, or dividends collected from corporate stock, held by the firm.

Yet, net-profit figures thus arrived at would not tell anything about the profitability of the industry even if the cost figures employed by the accountant were more than merely " past history ". In all cases the cost and net-profit figures of the accountant reflect the ownership situation in the particular firm. And there are, first of all, differences in the " capitalisation " of the firms, due to the different ways in which they have raised their capital. Corporations with greater bond issues and smaller capital stock will have, of course, smaller total net profits in the accounting sense. More generally, the more of the resources employed by a firm are owned by it (or furnished by it at no contractual cost), the higher will be its residual income ; the more of the resources are hired, leased or borrowed, the greater will be costs paid out and the smaller will be residual income, or the accountant's net profit figure.[1]

Business men who ask themselves how they have fared last year will be interested in their residual income. Business men, however, who ask themselves whether or not they should enter a new, supposedly lucrative field will be interested in another matter. They will examine whether total receipts are likely to be above the total costs of all required resources, no matter whether these costs would be contractual income paid to others or opportunity costs of the resources which they own themselves and might use elsewhere. Net profits would be found to exist only after all opportunity costs of all factors, owned or hired, are covered.

The economist, in a discussion of competition and the allocation of resources, takes a similar view. The cost of a productive service is the value of its best alternative use, or, in other words, the " opportunity " which must be forgone when the resource is employed for a given purpose. Any number of potential applications " compete " for the use of the productive services. Losses arise when resources are allocated to fields in which the " value product " is below the values that could be produced by using the resources in other fields. These latter values, the sacrificed opportunities, are the costs of using the resources, or their productive services, in the given field. To find a field where the produced value is above the cost of the necessary productive services—that is to say, to find a field with economic net profits—means that a reallocation of resources, namely their entry into the " profitable " industry, is indicated. Perfect competition is supposed to bring this about. If it were done perfectly, there could be no net profit in the long run.

Perfect competition, or pliopoly, is essentially a long-run concept. The long run is usually defined as the time interval sufficient to allow completion of adjustments of plant capacities, fixed equipment, and the number of firms. This definition should be handled with caution lest we " infer " from it that in the long run competition must, of logical necessity, be perfect ; a barrier which prohibits entry into a profitable industry and, thus, precludes "adjustment" of the industry, would " by definition " perpetuate the short run *ad infinitum.* In order to avoid such nonsensical tautologies,[1] the concept of " long run " will have to assume something of a " normative " character and the frictions which delay adjustment will have to be appraised as " normal " or " excessive ".

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[1] The accountant's net profit comprises non-contractual costs such as interest on the firm's own capital, risk premiums on insurable but self-borne risks, and, in some cases (other than in corporations), wages of management and rent on real property owned by the owners of the firm.

With perfect competition at work, that is to say, with no excessive frictions interfering with pliopoly, net profits are zero or tend to fall back to zero whenever they have become positive. But since adjustments to new situations must take some time even where there are no excessive frictions, positive net profits can exist in transition periods.[2] Where pliopoly is absent because of excessive obstacles to entry, surpluses of receipts over long-run cost may endure. These " remainders " may have the character either of monopoly rent or of profit.

7. Fixed Resources and Normal Profit

The fact that some of the resources employed in the enterprise are relatively immobile and relatively specialised—which makes their quick transference to other uses difficult or even impossible—in addition to the relative durability and indivisibility of resources, forces us to think of them in the short run as the *fixed resources* of the firm. They are fixed in contrast to the variable factors of production, which can be acquired as they are needed for the current production of output, and of which varying quantities are used if varying amounts of output are produced.[3] Capital funds owned or borrowed by the firm; real property, plant and equipment owned or rented by the firm; managerial ability and specialised skill hired on long-term basis or furnished by the owners of the firm; these and other things are examples of the "fixed resources" of the firm. Once they are acquired (by long-term contract or for ownership) the cost of these resources to the firm is fixed and independent of the exact output chosen in the short run. Anything that can be earned helps to defray the "overhead" and is gladly accepted. If the fixed resources are quite immobile or quite specialised they are available for service, in the short run, even if they earn nothing. Whatever they earn (that is any surplus of total receipts over the total of variable costs) is a *quasi-rent* to the firm.

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[1] The concepts " long run " and " perfect competition " would express the identical idea.

[2] It may be well to repeat that the spreading of the knowledge of profit opportunities is one of the many factors included in the catch-all " frictions "—normal or excessive.

[3] The classification of costs into variable and fixed is usually taken for granted without analysis of the causes which make some costs fixed over a certain period. The two basic causes, *immobility* and *specificity*, are of equal weight. If mobility were perfect (*i.e.* if transfer and transport costs were zero) but if the resource in its present form were absolutely specific (*i.e.* if it were of no use elsewhere), its continued use by the firm would be no (variable) cost of production. If the resource were highly versatile and equally valuable for many other uses (*i.e.* not specialized) but if it were not mobile (*i.e.* if the cost of transferring it equalled or exceeded its value at the alternative place of employment), the continued use of the resource by the firm, again, would be no (variable) cost of production. The element of *durability* enters because only in the case of durable resources are large " stocks " of the productive services bought in advance. (The durable good *is* a stock of future services.) If the resources are not durable, inventories or contracts for future delivery will prejudice the firm only for moderate or negligible periods. To the extent of inventories and future contracts even non-durable materials (if they have only the specific use and no other valuable application, or if they can be transported only under forbidding costs) may result in a " fixed supply" to the firm and their continued use would be no (variable) cost of production. The fourth element making for fixed costs, *indivisibility*, needs, at this point, no further explanation. But it might be mentioned that indivisibility may be created by institution where it is physically absent. If a firm were compelled to hire a minimum number of workers on a yearly basis the respective portion of labour cost would be no (variable) cost of production. In summary : immobility, specificity, durability and indivisibility are the four properties responsible for the problems of fixed resources and fixed cost.

If this quasi-rent is so large that it can take care of all the contractual charges for the hired fixed resources and of the depreciation and depletion of the owned fixed resources, and still leave something above all this, there will be profit in the business sense. But this business profit might be less than what the business man would have received for the services of his own fixed resources, had he devoted them to some other purpose. In this case his "economic profit" would be negative. *If the quasi-rent is exactly sufficient to cover all opportunity costs of all the fixed resources (owned and hired) which would be needed to establish the enterprise if it did not exist, then the quasi-rent is called "normal"*. This normal remainder after covering the direct costs is often called the *normal profit* of the industry.

Normal profit would be in its entirety *profit in the business sense* if all the fixed resources were owned by the firm; otherwise it exceeds profit in the business sense by the contractual payments made to owners of hired fixed resources. On the other hand, normal profit, being equal to the opportunity cost of all the fixed resources that would be required to reproduce the enterprise, is equivalent to *zero profit in the economic sense.*

8. Normal Profits, Entry and Exodus

The danger of tautological propositions is considerable in discussions of the concept of normal profits. Because supernormal profits seem to invite newcomers to an industry and sub-normal profits seem to drive away those who are in an industry, some writers are inclined to define normal profits as the earnings of the fixed resources in an industry which neither grows nor declines in size or number of firms. It should be clear that such a definition is useless: it muddles together attractiveness and actual afflux, desirability of entry and ease of entry, zero profits and monopoly rents.

To say that an industry which is not easy to enter will have "high normal profits" is to conceal the essence of the problem. The essential question is whether resources, however scarce, are allocated to the industry when their cost can be earned by the industry, or whether they are not so allocated in spite of the fact that their cost can be earned by the industry. The scarcity of resources is one thing; the ease of their entry into the industry is another thing. "*Normal* profits" will be high if the opportunity cost of the fixed resources required by the industry is high; profits will be *abnormally* high if resources, perfectly substitutable for those used by the industry, are available at less than they could earn in the industry but find their entry into the industry obstructed.[1]

The connection between sub-normal profits and decline of an industry is rather complicated. It can be shown that the level of sub-normal profit that will cause the exodus of an enterprise depends on several factors, the most important of which are these: The net opportunity cost of the fixed resources in their present form; the unexpired service-life of the durable fixed resources; the timing of replacement requirements.

If the fixed resources of the enterprise are not very specific and not very immobile, a modest decline in revenue may result in a withdrawal of the resources from the industry. Plant and machinery may be withdrawn in bulk, in their present form, and managerial ability may likewise be transferred to other uses. The more specific and immobile the fixed resources are, the less likely will there be such withdrawals and the more important will be the questions concerning the duration of contracts, the service-life of equipment, the timing of replacement requirements.

Let us confine our consideration to the role which plant and equipment play in this connection. Assume them to be exceedingly specific and immobile, and of high durability. Their opportunity cost in their present form, the present salvage value, will be very low, and only a very drastic fall in revenue will lead to the immediate disappearance of the enterprise. How long it will continue to operate if the fall in revenue is not quite so drastic will depend on the requirements for maintenance and replacement of outworn equipment. If the fall in revenue is considerable, it may happen that the first substantial replacement requirement finishes the enterprise. In this case, the opportunity cost of the productive services (which would be needed for the replacement of fixed equipment) in relation to the value produced in the industry would be too high to permit the allocation of the productive services to the industry.

On the other hand, it may happen that the various parts of the firm's equipment come up for replacement in instalments so small that the reinvestment always seems warranted. If the outlay which can secure continued operation of the enterprise is small enough in comparison to the revenue (however reduced), then it may, again and again, pay to incur the cost of replacement. It is conceivable that a considerable part of the equipment of an enterprise is replaced in spite of decidedly sub-normal profits—indeed, in spite of losses in the accounting sense—if only the replacement requirements arise little by little, in sufficiently small doses at a time.[1]

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[1] I can merely point in passing to the problem that the opportunity cost of each resource, *i.e.* its value in the best alternative use, may in turn be affected by conditions of entry into alternative fields. This complicates but does not, I think, invalidate the attempt to deduce normal profits from opportunity costs.

However, if large replacement requirements arise simultaneously the enterprise may be condemned to extinction even with a revenue which is much less short of normal than in the case of the staggered replacement bills. A complete and simultaneous replacement of the fixed resources of the enterprise would not pay even with the slightest deficit of earnings below normal, that is to say, with earnings below the level at which the full opportunity cost of all the services needed for reproducing the fixed resources can be covered.

Thus it seems that there is not one but a multitude of levels of profits of sufficient sub-normality to cause the exodus of an enterprise. This, however, is not so significant in an industry which consists of a goodly number of establishments. Among a large number of establishments there will probably always be one that is confronted with substantial maintenance and replacement requirements. This will be the marginal firm or marginal establishment, going out of business when profits fall below normal. The exodus-level of earnings in an industry as a whole (consisting of several establishments) may, therefore, be said to be determined by the total reproduction cost of the necessary fixed resources and not by the lower partial-replacement cost or even salvage value of existing equipment. These lower levels would determine only the exodus of particular firms rather than the exodus from the industry in general.

It is understood that this exodus from the industry takes place, by definition, in the " long run ", and it should also be understood that the calendar-time (clock-time) involved in these developments may really be considerable.

9. ENTREPRENEURIAL ABILITY

It is often said that the existence of economic profit is due to a scarcity of entrepreneurial ability, and that the different profit levels in different industries are due to the different qualities of entrepreneurship required for particular lines. According to this view the level of profit and the ease of entry into an industry should not be linked with the concept of perfect competition. For, it is said, normal profits will be high in " trades which require unusual personal ability ", and low in trades which require less of it and are therefore easy to enter.[2]

In order to clarify the issue it is necessary to inquire into the meaning of the " quality of entrepreneurship " and " personal ability of the entrepreneur". It seems appropriate to distinguish between the function of choosing, initiating and venturing an enterprise and, on the other hand, the executive function within a given, existing enterprise. In many respects, to be sure, the difference is only one of degree. No sharp lines, for example, can be drawn between the ability of starting new enterprises, the ability of starting new ventures in established enterprises and the ability of making some minor innovations in running existing establishments. All these are concerned with decisions which are risky in view of the uncertain future in an ever-changing world. But in one respect two functions, the strictly entrepreneurial and the managerial, are fundamentally different: the latter can be expressed in physically measurable terms, such as the labour-time, the full working time, of a manager; the former, the strictly entrepreneurial function, is not reducible to any physically distinguishable units.[1]

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[1] The marginal productivity of reinvestment may be very high while the average productivity is negative. In simpler words, a firm may steadily lose money and yet the replacement of a broken screw may constitute an investment with a rate of return of over a million per cent.

[2] Joan Robinson, " What is Perfect Competition ? " *Quarterly Journal of Economics*, Vol. 49, 1935, p. 107.

In the theory of income distribution it is one of the prime postulates of logical procedure that the resources (factors, productive agents or services, whichever terminology is preferred) can be expressed in physical units. If rent of land or wage of labour is explained on the basis of efficiency, and if this efficiency is measurable in physical terms, the logic of the explanation is unobjectionable. If the efficiency does not show itself in the quantity of physical product, but only in quality or in the amount of saved incidental expenses or in something of the sort, efficiency may still be compared in value terms. A comparison between the efficiency of various factors or the qualities of resources will be possible as long as the resources or factors, such as the piece of land or the unit of labour, are well defined in physical terms. One acre of land per year or one worker's labour per hour can be said to produce a revenue of so and so many dollars, because marginal analysis shows that this is the increment or decrement of revenue due to the application or non-application of that additional unit or factor.

If, however, neither units of factor nor units of product can be expressed in physical terms, the relationship between efficiency and "value" of the resource loses its explanatory significance. It is sheer circularity of reasoning to say that 100 dollars' worth of "uncertainty-bearing" or 100 dollars' worth of "entrepreneurial ability" have an efficiency of 100 dollars and have, therefore, a value (or derive an income) of 100 dollars. The entrepreneurial ability must not be defined and measured by the profit which it supposedly explains at the same time.[2]

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[1] Frank H. Knight's work on *Risk, Uncertainty and Profit* is the classical analysis of the problems discussed in this chapter. Professor Knight describes the manager as the man who gives the orders, and the entrepreneur as the one who chooses the man who gives the orders.

[2] Professor Knight's distinction between insurable, or at least measurable, risk and non-measurable uncertainty is based on the principle discussed above. If risk is measurable, the exposure to risk, that is risk-bearing, is measurable too. Uncertainty, on the other hand, is not measurable, nor is uncertainty-bearing; thus there can be no unit of uncertainty-bearing and, *a fortiori*, no value of such a unit of uncertainty-bearing.

Managerial ability has its measurable units: man-hours or man-years. Its services can be bought and contracted for. Managerial ability, either hired on a long-term basis or furnished by the owner of the firm, has its value which is derived from its general productivity in general lines of production or from its specific productivity in one special line. The income of the managers will accordingly be wage or rent.[1]

If the "entrepreneurship" which is said to be required by certain industries is, in fact, managerial ability, whose services might just as well be secured from hired men, then the high "profit" made by the entrepreneur who performs these services himself is really nothing but an implicit wage or an implicit rent. (It will be wage if the services would be of equal usefulness to other industries; it will be rent to the extent that the specific value of the services to the particular industry exceeds their opportunity cost.) Surely, the implicit wage of men of high ability has no more to do with perfect or imperfect competition than has implicit rent of land of high fertility. These resources fetch high prices no matter whether it is in the form of contractual or in the form of residual incomes. (Of course, residual incomes are profit in the business sense.) The high prices of valuable resources would never prevent more firms from entering the industry when profits (above the costs of these and other fixed resources) appear or increase. The quick and easy appearance of more firms in the industry, and hence the quick disappearance of profits in the economic sense, must depend on other things than on managerial ability and differences in its required quality.

10. UNCERTAINTY

If by entrepreneurial ability (which is said to be required by industries) is meant foresight, initiative and the willingness to bear serious uncertainty (in a non-measurable degree), then the conclusions will be different.[2] Profits can be said to be due to entrepreneurial ability if this ability consists in venturing what not everybody ventures or, better still, in venturing what only a few venture in this world where almost everything is uncertain.

In order to isolate uncertainty as a factor making for profits let us assume that there were no other barriers against the flow of resources and that none of the resources were indivisible; furthermore, let us argue *a contrario*, that is, let us assume for a moment that full certainty, instead of uncertainty, prevailed about our future. In particular, let us assume that the gross receipts of every enterprise are expected with fullest certainty. Profits could obviously not exist under these conditions. If the gross receipts from enterprise exceeded the sum of all prices of all the resources which are needed to produce the gross receipts, nothing would prevent more people from turning entrepreneur and buying or hiring (borrowing, leasing) more of the " cheap " resources. The demand for resources would stop rising only when the prices of the resources had increased enough to exhaust the full value product.[1]

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[1] In modern theory not only land but any sort of factor earns rent when its income is in excess of its "minimum supply price", that is, of the lowest price at which its services can be secured, which, as a rule, is its opportunity cost.

[2] Foresight combined with "self-knowledge and self-confidence or initiative" and "knowledge of, and willingness to trust, other men's powers of judgment" are, according to Professor Knight (*op. cit.* p. 287) the essential factors in entrepreneurial ability.

On the other hand—abandoning the assumption of full certainty—if the expected gross receipts are felt to be uncertain, nobody would be willing to buy or hire (borrow, lease) resources whose prices fully exhaust the uncertain proceeds. With the outcome uncertain, entrepreneurs calculate with safety-margins. They buy or hire resources only at prices which sum up to an amount that falls short, by a safety-margin, of the expected gross receipts. In other words, not the full value produced is imputed to the resources but only a value discounted for the uncertainty with which it is expected. If gross receipts happen to come exactly up to expectations, they will not only cover all costs of all resources, variable and fixed, hired and owned, but they will leave a remainder equal to the safety-margin : economic profit.

This does not mean that he who calculates with the greatest safety-margins will reap the highest profits. On the contrary, he will stay out of the industry and thus make no profits, while those who are more courageous and enter into the venture will profit from the effect of the uncertainty which holds back the conservative.

Uncertainty makes enterprisers hesitant ; it reduces the demand for resources—the demand which is derived from the uncertain demand which the enterprisers expect for their products ; thus, uncertainty lowers the cost of the resources. But uncertainty is not equally strong in all fields of enterprise. The greater the uncertainty with which most of the enterprising men anticipate the future that will bear on the success of a venture, the rarer will be the men of sufficient entrepreneurial drive to dare the venture. And the rarer the men who dare the venture, the less will be the demand for (or the "competition " in buying) the necessary productive factors and the supply of (or the " competition " in selling) the product. Hence, the greater will be the difference between average cost and selling price.[2]

To repeat the gist of the argument : Grave uncertainty makes most entrepreneurs calculate with conservative safety-margins ; calculated with these wide safety-margins, the enterprise will not show high profit prospects and will not appear attractive to many ; hence, the safety-margins deemed necessary to many may eventually procure profits to the few, more enterprising, who enter the industry with its uncertain prospects.

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[1] Frank H. Knight, *op. cit., passim.*

[2] Smaller " competition " in buying the factors and selling the product may, but need not, mean absence of polypoly in the respective markets. It is sufficient that total demand for factors and total supply of product are smaller than they would be otherwise (*i.e.* in the case of less uncertainty).

In a world of perfect mobility, divisibility and foresight, and without any uncertainty about the future, pliopoly would be general. Such a world would know no profits. In a world of uncertain change, competition in entry cannot be perfect and profits will arise. Yet, in some fields where uncertainty is considered slight, entrance competition may approach perfection; pliopoly may then be said to exist in industries in regard to whose prospects "entrepreneurs" entertain little doubt. In most fields some degree of uncertainty is likely to exist and to operate against too ready an inflow of more sellers. The more uncertain the prospects appear in an industry, the more imperfect will entry be and the greater may be the profits of the firms established in the industry, sheltered by the deterrent uncertainty.

II. INDIVISIBILITY

Just as uncertainty can explain profits in a world of perfect mobility and perfect divisibility, indivisibility of resources can explain profits in a world of perfect mobility and absolute certainty about the future.

The indivisibility which prevents perfect adjustment may be that of human resources, natural resources or man-made resources. One cannot very well employ half an engineer, a third of a chemist, a fifth of a mechanic or an eighth of a manager. (Various set-ups for the temporary hire of skills, such as the institution of consulting experts, have the function to reduce the effects of the indivisibility of human resources.) One cannot economically work with miniature blast furnaces, baby strip mills, and midget paper machines; one cannot build motors, engines or turbines of much less power at proportionally smaller cost; one cannot work with half a conveyor belt or a quarter of a transport system; most machines can be made at half the size only at more than half the cost and/or with less than half the efficiency.

Indivisibilities can cause serious obstacles to pliopoly. The establishment of new firms in an industry (or the branching out of firms into an industry) where efficient equipment comes only in large units, cannot be an easy matter. That it may take considerable time to erect and equip the new plants is perhaps the least serious of the obstacles. The most direct effect of the non-existence of small units at proportionate cost and with proportionate efficiency is that all increases in productive capacity are "lumpy" or discontinuous.

Let us assume again for a moment absolute certainty of expectations on the part of entrepreneurs, both those actually established and those who contemplate entering into an industry which consists of large, indivisible units. Let us assume furthermore that, after a period of full adjustment of plants to output, demand has further increased and higher proceeds are obtained from selling an output which has been raised by the employment of more variable factors with the given fixed resources. Even if these higher gross receipts are expected (without any doubt) to last permanently, they may not be high enough to permit the installation of another fixed production unit. The receipts will then leave a remainder above all costs. This remainder or profit will endure because it is not sufficiently high to make an entry of more fixed resources pay. If demand had increased by still more and profit been pushed higher, so that an additional set of fixed resources could be employed on a paying basis, then profit might be wiped out again. The indivisibility of important resources allows the industry to expand in jumps only; with demand increasing by amounts which do not correspond to these " jumps ", profits can arise even if all other conditions of easy entry are fulfilled. (The question whether or not these profits had better be called rents will be discussed later.)

It should be noted that indivisibility, while it may already be a sufficient cause for absence of pliopoly, may also react on several other conditions, and make them more adverse to the possibilities of pliopoly. Indivisibility may operate indirectly through the element of uncertainty (which was assumed away in the above consideration only in order to show the logical independence between indivisibility and uncertainty). Uncertainty is seriously increased if indivisible factors permit industrial expansion in jumps only. For while the market for a relatively slight increase of an industry's output may be comparatively easy to predict, expectations concerning demand elasticity in the face of a *substantial* output increase cannot but be highly uncertain. The combined effect of indivisibility and uncertainty is further enhanced by the fact that that same indivisibility probably gives rise to large investment requirements for expansion of and entry into the industry. The effect of uncertainty is likely to be stronger the larger the investment is which has to be exposed to the uncertainty. The obstacle which uncertainty presents to pliopoly may, therefore, become more forbidding if the investment requirements of an entry into the industry become larger owing to the large minimum or optimum size of establishment.[1]

Three ways have thus far been shown in which indivisibility of productive resources offers resistance to perfect pliopoly and opportunity for profits: (1) Indivisibility, by preventing gradual growth of the industry, may, if demand for a product rises, lead to lasting profits even in absence of uncertainty. (2) Indivisibility, by reducing predictability, increases the uncertainty of expectations and thus the profits which may be due to such uncertainty. (3) Indivisibility, by causing larger investment requirements, may aggravate the effects which uncertainty of any given degree is apt to have.

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[1] With equal mathematical risk-expectations per invested dollar (supposed that uncertainty can be quantified) small investments may find funds overnight while large investments may not be undertaken at all. If the productive unit, and hence the initial investment, is small, a slight increase in the profit margin observed through a moderate length of time may attract new competitors. If the productive unit, and hence the investment, is large, only a considerably higher profit margin observed through a conservatively long time may attract new entrants to the industry. Thus, even if competition is " free " in any other respects, competition will rarely be " perfect " if the necessary investment for setting up new firms in the industry is very large. Yet, generalisations are dangerous here as elsewhere. The largest investments, indeed, if there is much " phantasy " in them, may quickly catch the investors' interest, and people may go in for these enterprises in a big way. Economic history furnishes sufficient evidence for surprisingly rapid entries of new firms into industries where the initial capital requirements were enormous. Thus, it cannot be said that a large optimum size of plant is *a priori* incompatible with pliopoly. But since the statement that perfect competition prevails in a certain industry is largely a forecast, its probability-value becomes small for industries where initial investments are large.

There may be still more indirect ways in which indivisibility of resources can curb entry and protect profits in the industry. As has been shown elsewhere, polypoly cannot exist where the optimum plant size is large: such an industry will consist of only a few firms. Out of the oligopolistic position of the industry circumstances may develop which act as an effective check on the entry of newcomers. For example, the danger of price wars and of cut-throat competition may deter potential entrants and, thus, add to the forces that preclude pliopoly.

12. IMMOBILITY

Uncertainty, indivisibility and immobility are usually mentioned together when " imperfections " of competition are discussed. Uncertainty about the prospects of a business and indivisibility of needed resources have just been shown in their role in profit explanations: both uncertainty and indivisibility can prevent the profit-removing allocation of additional resources to an industry. Has immobility of resources the same effect and should it therefore be added to the " causes " of profit and of the absence of pliopoly?

Immobility of resources may effectively differentiate resources which would otherwise be homogeneous and perfectly substitutable for one another. Resources which are immobile will often not qualify for certain uses for which they could qualify if they were mobile. Their opportunities are more limited and their opportunity cost, therefore, may be lower. Two consequences are possible: (1) The immobile resources with low opportunity cost may be hired for a use in which they create a value in excess of their cost: firms hiring the resources may profit from the cheap factor cost. (2) The immobility, by preventing resources from competing with better-located resources, makes the latter scarcer and, thus, more valuable than they would otherwise be: firms owning the resources may profit from the high value product.

In the one case firms *hire* resources which are cheaper because of their immobility. In the other case firms *own* resources which are more valuable because of the immobility of potential substitute resources. Are the higher earnings of the firms in the two cases profit in the economic sense and what are the relationships between these earnings and the competitive position of the respective firms?

Let us look first into the second case, the case of " profits " derived from the ownership of scarce resources, and its connection with immobility. Immobility of owned resources is often given as a rather obvious explanation of the continuance of losses of a firm through extended periods. For it explains why certain fixed resources cannot move out of an industry which has become a loser (either through the fall in the value product or through a rise in current cost). If immobility of resources which have been devoted to a certain line of production and cannot easily move out can explain persistent losses to the firms concerned, one would think that immobility of resources, preventing their moving into a line of production which could well earn their costs, can also explain persistent profits in this line. Yet, economic theory has preferred not to use here the terms in question. The " losses " and " profits " in point are mere accounting losses and profits respectively, *ex post* comparisons of historical valuations with current earnings.

The current earnings of the owned resources can, owing to the immobility of potential substitute resources, be higher than they would be otherwise, and, of course, higher than are the earnings of the said immobile resources. But these surplus earnings are regarded, by economic theorists, as *rents* rather than as pure profits. And this is not unreasonable, because it will depend chiefly on the actual ownership of the resources whether the rents are paid out as " costs " or retained as " business profits " of the firm.

If the scarce resources—which are scarcer than they would be if all existing resources of the kind were able to move in—are owned by the firms, all the rent income will be business profit ; if the scarce resources are currently hired or acquired by the firms, the rent income will probably be paid out to the owners. (If the firms have hired the scarce resources on long-term contracts before the value of the product rose, parts of the rent will for the duration of the contracts be business profits.) The fact that in any case the earnings can be imputed to the scarce resources justifies us in speaking here of rents and not of pure profit. Immobility may create rents, not pure profit.

The label which is put on the earnings in question does not, however, save us from inquiring whether the specific rents from owned resources may not have resulted, in part at least, from the competitive position of the firm or industry concerned. We may find, for instance, that the immobility of potential substitute resources was artificially created and subject to institutional control. With artificially increased scarcity of the resources, the specific rents from these resources may well be characterised as *monopoly rents*. And the concept of pliopoly is thus seen to be linked up not merely with the phenomenon of pure profit but also with that of specific rents.[1]

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[1] This statement has a bearing on the problems of measuring " profit rates " : since monopoly rents may be imputed to certain assets which appear in the books of the firm, the comparison of earnings with capitalisation need not show high profit rates. Hence, high monopoly rents need not imply high profit rates. Only pure profits, which cannot be imputed to any asset, would result in high statistical profit rates.

If all this sounds too "abstract", it can be made more concrete by means of illustration. Assume that some special skill is the scarce resource. Assume that a "certificate of skill" or "permit" by public authorities or trade associations or unions is a condition of exercising the skill in a given area; this creates immobility of the scarce resource if the certificate is not issued freely and without discrimination. The scarcity of the skilled labour is thus artificially increased. If the certified specialists run their own business, their scarcity value will show up in business profits; if they are hired and draw a wage or salary, their scarcity value will be a business expense. In both cases we can regard the respective incomes as monopoly rents.

In this illustration of an artificial immobility of skilled labour, imputation of the monopoly rent to the scarce resource is clearly possible (though of course not in an exact amount), yet there will not be—except in a slave economy—any corresponding item among the assets in the books of the business firm, not even if the firm owns the resource (or, perhaps more correctly in this case, if the scarce resource owns the firm, or still better, if the firm and the skill are owned by the same person). Assume, indeed, licences to be the condition of operating a certain business in a certain area, these licences to be issued only to a limited number of firms but freely transferable (saleable); in this case the monopoly rents of the business will be capitalised in the value of the licence, and this licence may be an item among the assets of the business firm. Thus we see that monopoly rent, created through artificial immobility of resources, can appear in different guises: as business profit, as business expense, or as a normal return from a business asset.

We have still to examine the other case of immobility, the case of firms profiting from acquiring or hiring resources which are cheap because immobility reduces their opportunities. This case is everything but easy and several questions must be cleared up before one can proceed. Are the immobile resources really cheap in relation to their productivity or are there perhaps other things which make conditions of production less favourable? In the latter event a firm could not really profit from the low-priced, immobile resources. If the resources are, however, really cheap for the specific use which is made of them, that is to say, if their so-called efficiency-cost is low in comparison with the efficiency-cost of like resources elsewhere, why then would not all firms try to set up their businesses at the location at which the cheap factors can be had? Why would not other firms move to the cheap-factor location, or why would not new firms enter the industry and settle at the favourable location?

We see that immobility in this case, far from explaining profits or absence of pliopoly, can have its supposed results obviously only if pliopoly is absent for other reasons; what may these reasons be?

One reason, and probably the most common in cases of the sort, is indivisibility. The economical plant size in the industry which employs the cheap factors may be such—in relation to the supply of these factors—that another plant at the same location would not pay. Another plant at that location may require more of the cheap factors than are available, so that any entrepreneur considering the proposition would know that he must not count on obtaining cheap factors in sufficient amounts. Or, another plant at the location may not pay because of limitations in the sale of the product, that is to say, because demand conditions in the region may not warrant the high jump in output that would be involved in the erection of another plant. Thus, again, indivisibility of the economical plant size would prevent the gradual expansion and entry of firms which through competition in buying the factors (and in selling the product) would eliminate the condition of abnormal profits.[1] Indivisibility, rather than immobility, would thus be the ultimate explanation of the profits, which, incidentally, would be pure profits inasmuch as they are not imputable to any resource or right or asset of any sort. In view of the " protected " situation of the firm one may prefer to speak here of " monopoly profits " (as distinguished from monopoly rents).

Other reasons for the absence of pliopoly, that is for the exclusion of other firms from the use of the cheap, immobile resources, may go back to existing property rights or privileges of one kind or another; the firm may own a patent protecting the technical process which uses the cheap resources; the firm may control the local supply of a complementary means of production (say, fuel); the firm may own all the land in the region, thus controlling all potential sites for additional plant; the firm may enjoy a governmental privilege

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[1] Competition in buying the cheap factors may mean two things: (1) that the demand for factors will continue to rise until no profit can be made from the use of the factors, *i.e.* until the price of the factor is equal to its average productivity; (2) that the factor price is felt to be independent of the individual firm's demand so that the firm continues to buy factors up to the point where their marginal productivity is equal to the price of the factor. The first type of competition in the buying market is analogous to pliopoly (and might be called pliopeony), the second is analogous to pure polypoly (and might be called pure polypeony). Absence of competition in buying the cheap factors may mean accordingly (1) that no more buyers enter the market and that the factor price fails to be driven up to the factor's average productivity, or (2) that the buyer or buyers feel that the factor price would be higher the more they employ and that they accordingly restrict employment below the point at which the factor's marginal productivity would have decreased to the level of the factor price.

The second type of " absence of competition " (which can be pictured by upward sloping curves of the factor supply as seen by the buyer) need not be implied in what is said in the text above. Assume for example that there are 1,000 labourers of a certain type in a valley. A firm settles in the valley and employs 800 of the 1,000 men. The firm would be able to get more (than 800) men at the given (low) wage rate (*i.e.*, the supply of labour to the firm is felt to be perfectly elastic), but with the given plant size it would not pay to hire more (*i.e.* the marginal productivity of a greater crew would be below the wage rate). The wage rate is low, the average productivity of labour is higher, but no second plant moves into the valley, because in the particular industry smaller plants, employing less than 600–800 men, are not economical, and only 200 men are available without outbidding the existing plant; the wage rate will stay low.

Should the existing firm believe that the wage rate could be reduced when employment was restricted below 800 men, the firm would perhaps cut down its operations (so-called monopsonistic restriction of employment). In this case both types of competition would be absent.

(licence, tax-exemption or the like) which is not available to newcomers, etc., etc. In all these cases the business profit which is supposedly " due " to the immobility and cheapness of resources will be imputed to the specific right or resource which, by excluding would-be competitors, secures to the firm the maintenance of the favourable position.[1] The earnings in question will be rents " derived " from the scarce resource which protects them : the patent rights, the fuel deposit, the land property, the governmental privilege. Surely, some of these rents deserve to be called monopoly rents.

(*To be continued.*)

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[1] The favourable position need not imply a " monopsonistic position ", as was pointed out in the preceding footnote. The favourable position may, but need not, mean that the price paid to the factor is lower than the marginal productivity of the factor ; it is sufficient that it is lower than its average productivity. But in any event the whole difference will be imputed to the right or resource which keeps newcomers out.

The Degree of Monopoly

By K. W. ROTHSCHILD

THE purpose of this paper is to introduce a new proposal for the measurement of the degree of monopoly and to compare it with alternative measurements which have been advanced hitherto.

I

If we introduce a measurement of the *degree* of monopoly it is already clear that we use the word " monopoly " in the modern (Chamberlin- or Robinson-) sense, viz. meaning the absence of pure competition. Only if monopoly is taken in this wider sense is there any meaning in the term " degree of monopoly ". Now, to have a measurement of that degree of monopoly might have different advantages in analytical and practical problems. There are different ways in which the degree of monopoly might be measured, but before going into a discussion of their relative merits I want to introduce an " index of monopoly power " which is based on one of the diagrammatic devices used by Chamberlin in his *Theory of Monopolistic Competition.*

The diagram I am going to use is introduced by Professor Chamberlin as an alternative demonstration of the equilibrium of the firm under conditions of product differentiation.[1] Here I reproduce only that part of the diagram which is relevant for my argument.

In Fig. 1, CC' is the familiar cost curve of a single firm. We assume now that the product[2] of this firm is in some way differentiated from the products of other firms producing the same commodity. We then can draw two different demand curves for the firm's product, dd' and DD', each based on different assumptions. Assuming that at present the firm charges the price OP and sells the amount OM, dd' shows the various prices which could be obtained for different outputs, *provided the competing firms do not change their price.* DD' on the other hand shows which prices would be combined with various levels of output, if the other firms change their price (or output) in the same or some other predetermined way as the firm in question. Chamberlin makes the simplifying assumption that all firms charge the same price, OP, and that DD' represents the price-output relation for the single firm, if all other firms change their price simultaneously and to the same extent as the firm itself.

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[1] *The Theory of Monopolistic Competition*, 1st ed., p. 91, Fig. 14.

[2] The terminology in this article is mostly coincident with that used by Professor Chamberlin in *The Theory of Monopolistic Competition.* As far as this is the case, no definition will be given here.

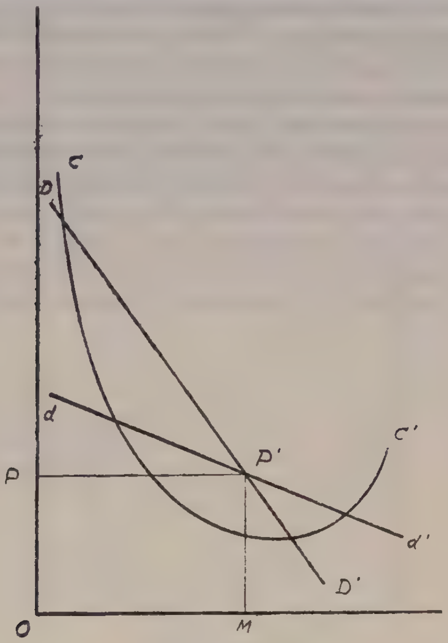

FIG. 1.

But the two curves maintain their meaning, even if we interpret them less abstractly. Firstly, we need not maintain the assumption that all firms charge the same price. We interpret *dd'* then as the demand curve for the firm's product, provided that the prices of the other products remain unchanged. *DD'* will then lose its simple meaning, since if other products are sold at different prices we can no longer assume that *DD'* represents the demand for the firm's product under uniformly moving price policies. In fact, we can no longer think of one curve *DD'* but there are different curves which could be drawn according to the assumptions we are making. We could, for instance, assume that all the firms increase or decrease their prices by the same absolute amount, or in the same ratio, or that one group of firms change their price in some way, another group in a different way, etc., etc.

On which assumptions we should draw our *DD'* will depend on the merits of the case. But—apart from one exceptional case which we shall discuss later—whatever assumptions we chose, *DD'* will have a steeper slope than *dd'*.[1] This is a logical consequence of the fact that more people will turn away from their favourite brand after an increase in price, if the other brands remain unchanged in price than if they, too, become more expensive.

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[1] There is one set of assumptions which would lead to the opposite result, viz., *dd'* having a steeper slope than *DD'*. I mean the assumption that the other firms (or the majority of the other firms) change their prices in the *opposite* direction of that in which our firm has moved. Such assumptions are, however, ruled out as highly unrealistic, since we have assumed that all the firms are in close competition.

We have now made sufficiently clear the meaning of the two demand curves, *dd'* and *DD'*, and we can now introduce our measure of the degree of monopoly power which is based on these two curves.

If *OP* is the price charged by the firm and *OM* the output sold, draw the two demand curves *dd'* and *DD'*. Draw the line *PP'* parallel to the x-axis. (See Fig. 2.) We now call the angle *dP'P*, α, and the angle *DP'P*, β. Our index of monopoly power, m, is then defined by the fraction $\frac{\tan \alpha}{\tan \beta}$.

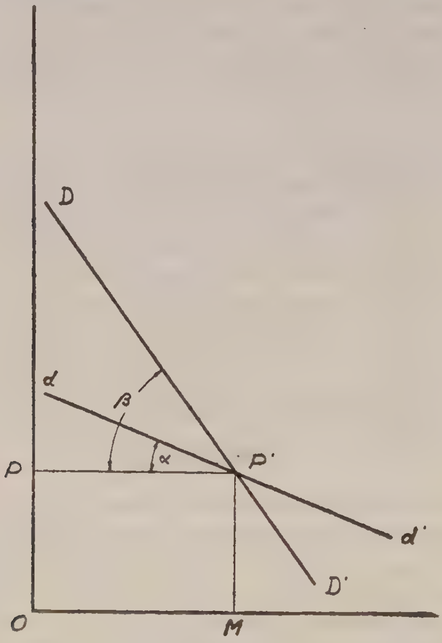

FIG. 2.

Or, if we define the curve *dd'* by

$$y = f(x),$$

and the curve *DD'* by

$$y = g(x),$$

then we have

$$m = \frac{f'(x)}{g'(x)}.$$

The behaviour of the index is on the whole simple and obvious. Under conditions of pure competition *dd'* will be parallel to Ox, $f'(x)$ will be zero, and $m = 0$.

If, on the other hand, the firm is the only producer of that particular commodity,[1] there will be no competing firms, dd' will coincide with DD', $f(x)$ will be equal to $g(x)$, and $m = 1$.

Between these limits of 0 and 1 are the infinite possibilities of a mixture of the two elements, monopoly and competition. I indicated, however, before that under exceptional circumstances dd' might have a steeper slope than DD'. This will be the case when people are induced to buy *more* of the firm's products if their price is increased while the prices of competing products remain unchanged.[2] This behaviour is caused by the belief that the higher price represents a better quality, or by the social stratification of our society which causes certain classes of people to buy at a certain price level rather than to their best monetary advantage.[3] This case is illustrated by Fig. 3.

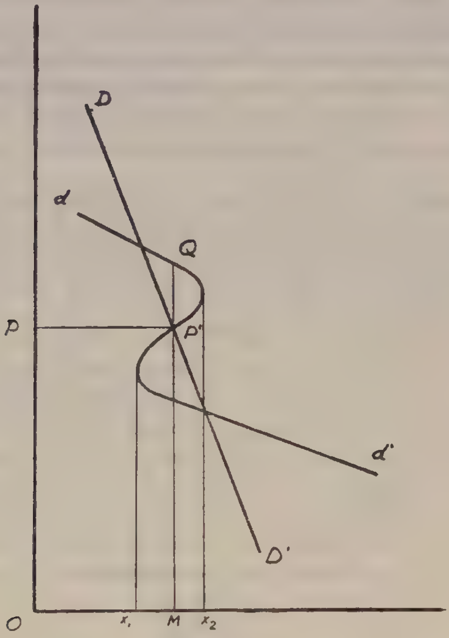

FIG. 3.

It is obvious that these abnormal conditions can only prevail for a certain range of output, and that ultimately the slope of DD' must again become steeper than that of dd' at both ends, simply because if this one firm continues to increase or decrease its price alone, a point will soon be reached when purchasers will turn from or to the particular product of that firm, whatever their beliefs or prejudices are. It will also be noticed that for a certain range of output (x_1 to x_2 in Fig. 3) there is not the usual unique relation between price and output but there are three different prices (two in the limiting cases x_1 and x_2) connected with each output. This is so because in our example the price is not only determined by the size of the output, other things remaining equal, but also by the initial price policy of the firm.

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[1] We shall return later to the difficulties of a proper definition of "commodity" and "product".

[2] See Chamberlin, op. cit., p. 107.

[3] *i.e.*, they do not maximise economic utilities but economic plus social utilities.

We can see at once that under the conditions which we have illustrated in Fig. 3, the price OP will not represent a stable equilibrium. For, whatever the cost conditions of the firm may be, profits could always be increased by producing the same output and selling it at a higher price as indicated by the upper part of the demand curve. (This price is MQ in Fig. 3.) But in spite of this tendency of the price to leave those abnormal parts of the demand curve dd', the situation pictured in Fig. 3 might be stable (1) because of ignorance, or (2) because of other frictions, like a predetermined price policy, etc., or (3) because the number of competitors is small so that the firm assumes that its change in price will be followed by others, thus making DD' the curve which influences decisions as to price and output.

If for one of these reasons the price remains at OP, we shall either find $f'(x)$ having the same sign as $g'(x)$, but $f'(x) > g'(x)$, or $f'(x)$ having the opposite sign to $g'(x)$, and $f'(x) \gtreqless g'(x)$. That is to say, in our exceptional case m will either be positive and greater than 1, or negative and greater than, equal to, or smaller than 1.

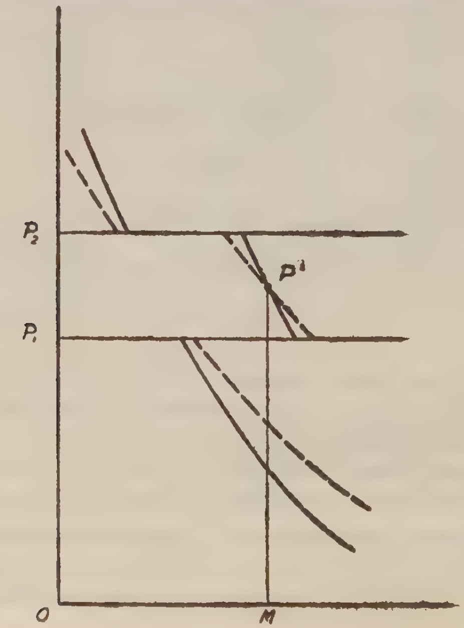

FIG. 4.

We may just add another, though related, irregularity in demand conditions which does not, however, affect our index m, i.e. it leaves the value of m somewhere between 0 and $+1$. This irregularity is caused by a more or less general acceptance of a "proper" price for a certain commodity, and a fall in *aggregate* demand (not only for one of the competing products !) after the price had been reduced below that "proper" level. This case is even more exceptional than the previous one, but there are occasions where we could imagine this happening. For instance, we might think of a theatre in a small town charging 3s. for its seats and then suddenly changing its price policy by introducing 6d. tickets for all seats. A decline of audiences might be the consequence, if they deemed it impossible to get good entertainment below the customary 3s. level.

These conditions are illustrated in Fig. 4. P_1 and P_2 are the lower and the upper limit of the "proper" price level, the unbroken line represents DD', and the dotted line represents dd' for the actual price MP'. It will be seen that in this case no particular problems arise for the measurement of m.

II

Since there are different ways in which the degree of monopoly could be measured, and since there actually have been other methods devised, it will be perhaps the most profitable procedure to discuss the advantages and shortcomings of m by comparing it with those other proposals. As far as I am aware there have been two methods evolved so far, one by Mr. Lerner[1] and one by Mr. Bain.[2]

Let us take the latter method first. As the title of his paper suggests, Mr. Bain is using excess profits as an index of monopoly power. This will seem strange to everybody who is acquainted with the modern analysis of monopolistic competition with its familiar case of a demand curve of finite elasticity tangential to the average cost curve. In other words, we shall often find monopolistic elements side by side with normal profits. Mr. Bain is, of course, aware of this difficulty, and he overcomes it by an ingenious construction of a "theoretical profit rate" which will yield a "theoretical" excess profit in the situation just described even though the "accounting profit rate" will show only normal profits. It would lead too far to explain here the idea behind the "theoretical profit rate"; I can only mention that it is derived from the "accounting profit rate" by certain difficult estimates as to the market value of capital assets, the amount of assets which would be held under competitive conditions, etc.

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[1] A. P. Lerner: "The Concept of Monopoly and the Measurement of Monopoly Power," *The Review of Economic Studies*, Vol. I, pp. 157 ff. See also J. T. Dunlop, "Price Flexibility and the Degree of Monopoly," *Quarterly Journal of Economics*, Vol. LIII, pp. 522 ff.

[2] J. S. Bain: "The Profit Rate as a Measure of Monopoly Power," *Quarterly Journal of Economics*, Vol. LV, pp. 271 ff.

But even after this refinement has been introduced we may still ask why a profit rate should be chosen as a measurement of monopoly power, although there is no necessary theoretical correlation between monopoly and the size of profits. Mr. Bain gives two reasons for this use of his profit index: (1) Referring to Mr. Dunlop's attempt[1] to give statistical content to Mr. Lerner's index of monopoly, he points out the need for a more complete and statistically more accessible measure of monopoly power,[2] and (2) he thinks that we should tap the plentiful and unused resources of accounting profits.

Now, as to (1), it is true that Mr. Dunlop has to fight hard in order to give numerical values to Mr. Lerner's index and he is only able to do so after having made some bold and far-reaching simplifying assumptions. But after having read Mr. Bain's article (where no statistical evaluation is attempted), one cannot but doubt whether his method with its highly intricate estimates would yield any more reliable figures. But even if such figures could be obtained, they would not be strictly comparable, since there is no theoretical relation between profits and monopoly. With Mr. Lerner's and my index a higher value will always indicate a higher " degree of monopoly ", according to our definition of this term. (I come to this point later on.) In Mr. Bain's index, a higher value does merely mean a higher " theoretical profit rate ". But this might not be due to the presence of more monopoly elements but to the existence of monopsony elements. In fact, since the latter cannot be separated from the former by the profit method, the index loses much of its usefulness as an index of monopoly power.

This leads us straight to point (2). If in our theoretical work we feel a need for some measurement, we should forge a tool which will best suit our theoretical need and should not allow ourselves to be side-tracked by the consideration of any statistical material just because it is easily available. Such material should be used as a make-shift in individual investigations as long as nothing better is obtainable. But it should have no influence on our theoretical tools which would otherwise only lose their analytic force and would obscure those issues for whose solution they were created. The introduction of the notions " elasticity of demand ", " elasticity of substitution ", etc., have, for instance, proved extremely stimulating to economic theory, even though their statistical evaluation still seems far from being accomplished. But apart from that, the formulation of a theoretically useful formula will often stimulate the production of those statistics which are needed for quantitative studies. An example of this are the more detailed fertility statistics for the

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[1] Op. cit., Part II.

[2] This objection would apply to my index at least as much as to Mr. Lerner's. The contrast between Mr. Lerner's and Mr. Bain's index, which is discussed in the next three paragraphs, holds also with respect to the contrast between mine and Mr. Bain's index. The differences between Mr. Lerner's index and mine will be discussed later.

United Kingdom which followed the introduction of Kuczinsky's net reproduction rate.

Let us, however, return to Mr. Bain's index. There is one case where his index is definitely superior to Mr. Lerner's and mine. This is the case of an industry, the entry to which is limited, but where the firms within the industry are purely competitive. This case is illustrated by the familiar diagram, Fig. 5. The dotted line represents marginal costs. The price in our example will be *OP*, costs will be *OA*, and the firm will earn extra profits *ABP′P*. These extra profits will be stable, since according to our assumption no new firms can enter the industry. Now, whether we should include this case in a definition of monopoly or not is a matter which cannot be discussed here. But it certainly is an important case, not only in theory but also in practice in questions of licensing, guilds and other public and private policies of restriction of entry.

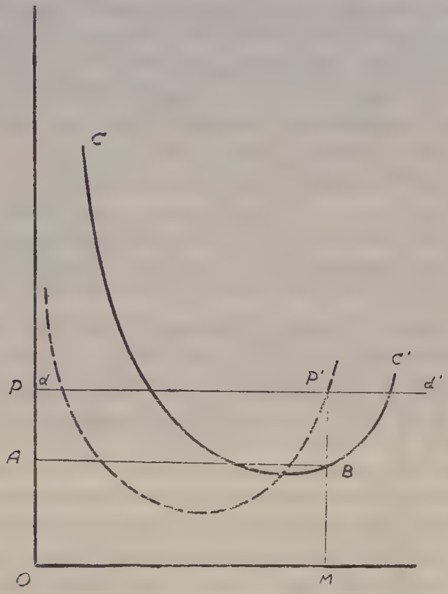

FIG. 5.

But both Mr. Lerner's and my methods of measuring monopoly power fail in this case. They both yield zero. Wherever, therefore, these conditions—competing firms within the industry, limited entry to the industry—prevail, Mr. Bain's index will be a useful measurement. And since the competition of the firms within the industry makes any monopsonistic exploitation of factors unlikely, the results of investigations on those lines will be comparable.

Turning to Mr. Lerner's index, the position is at once very different. Mr. Lerner's index of monopoly power is theoretically as sound as any one could devise. Starting from the fact that the demand for the product of a monopolistic producer (our dd') is not infinitely elastic and that, therefore, marginal revenue will not coincide with average revenue (or price), he defines as his index of the degree of monopoly power the fraction $\frac{P-C}{P}$, where P is the price, and C the marginal cost. For the sake of brevity we shall henceforward denote this index by μ.

Now, it can be seen at once that $\mu = 0$ when $P = C$, i.e. when price is equal to marginal cost, which is one of the characteristics of competitive equilibrium. It will be further noted that under equilibrium conditions, where marginal cost is equal to marginal revenue, $\mu = -\frac{1}{\epsilon}$, where ϵ is the elasticity of demand. An increase in the value of μ represents therefore a decrease in the elasticity of demand; or, if we take into account the possibility of friction and disequilibrium, an increasing gap between price and marginal cost in relation to price, i.e. an increasing departure from the competitive ideal. The value $\mu = 1$ is a sort of upper limit which will, however, never be reached in reality, since it would depend on marginal costs being equal to zero.[1]

It may be noted in passing, however, that the exceptional case which we have discussed on pp. 27—28 will yield a negative value when we are using μ. If we draw a simplified version of the irregular demand curve from Fig. 3 and add the marginal revenue curve (the

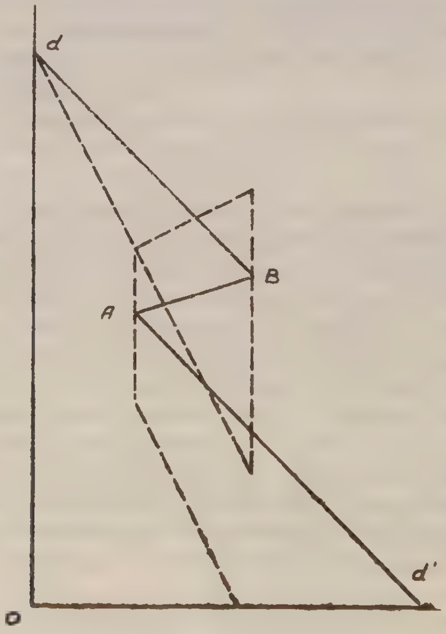

FIG. 6.

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[1] For a full discussion of Mr. Lerner's index, the reader is referred to A. P. Lerner, op. cit., and J. T. Dunlop, op cit.

dotted line in Fig. 6), we see that for the critical portion AB, the marginal revenue curve lies *above* the average revenue curve. If equilibrium within this range is reached, marginal costs will be equal to marginal revenue and, therefore, higher than price. $P—C$ will become negative and so will μ. The possibility of μ becoming negative with an upward slope of the demand curve has already been mentioned by Mr. Lerner, though in a different connection.[1]

But let us return to the main argument. We have already said that Mr. Lerner's index is theoretically sound and is probably the ideal measure if we want to deal with problems like the social cost of monopoly, the allocation of resources under monopoly, the divergence from optimum output, and similar questions. For, since μ measures the gap between price and marginal cost over price, the result will tell us how far a firm departs from the optimum position,[2] and a greater or smaller value for μ will have a definite meaning with regard to this question.

But there might be other problems in which we are interested. For instance, we may be interested in how far a particular firm controls the market for a certain commodity.[3] This question is not only born from everyday usage of the word monopoly as, for instance, in a sentence like " The Rubber Committee has an almost complete monopoly in the sale of rubber " ; it is also of high interest in descriptive economics and may be useful for illustration and verification purposes in pure theory. Now, the question arises what sort of index should be taken to tackle this side of the monopoly problem. One could simply take the inverse of the number of firms producing and/or selling the commodity, obtaining an index ranging from 1, in the case of a single firm, to 0, in the case of an infinite number of firms.[4] But this crude method would give us only an index for the industry as a whole and not for each firm, and secondly it does not take into account that, even if there are a great number of firms, one or two big concerns might have a decisive influence in the market.

It seems to me that for this problem of control over a market the index m, which we discussed in Part I, is a suitable measure. We have already described its general behaviour and all that is left to do is to compare it with the behaviour of μ with respect to this and other problems.

Let us return to Fig. 1. The meaning of the curves dd' and DD' will still be remembered. Now let us assume that dd' and CC' are the demand and cost curves for two firms, different in all other respects, say, one producing thread and the other cigarettes. Let us further assume that, owing to some reason or other, there is only this one firm producing thread while there are several firms producing cigarettes. That means that in the first case DD' will coincide with dd', while in the second case it will not and may have the shape we have given to it in Fig. 1.

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[1] Op. cit., p. 174.

[2] If we take the competitive equilibrium as an optimum. This question is treated by Mr. Lerner in the first part of his paper.

[3] The need for an index adapted to this problem had been mentioned by Dunlop, op. cit., p. 527, note 7.

[4] See Lerner, op. cit., pp. 165, 166.

In this example, the price being equal to OP, μ would have the same value for both firms, while m would be equal to 1 for the thread-producing firm while its value for the cigarette manufacturers would be smaller. Both results seem satisfactory to me. The identical value of μ for both firms indicates that they both depart to the same extent from the social optimum. The different values of m, on the other hand, show that the first firm has an absolute control over the thread market while the second firm—though having some grip on the smokers—cannot influence to the same extent the ruling price of cigarettes in general. It should be noted, however, that while all the firms within an industry taken together have obviously a complete monopoly in that particular commodity, the individual indices (m) of the firms will normally not add up to 1 but to less or more.

I hope the above example has made sufficiently clear the relative merits of the two indices. We have, however, neglected so far one important difficulty connected with the construction of the curve DD'. For the definition of DD' we had to speak of competing firms producing " the same commodity " or " similar products ". It will be clear that expressions of this sort become very ambiguous in this world of differentiated products with which we are dealing.[1] Is a packet of Capstan cigarettes a closer substitute for one of Player's cigarettes than a packet of chewing gums or a cinema ticket? Questions like that are of crucial importance for the use of the index m. If we are unable to speak of a " group " which is to some extent economically distinguishable from the rest of the aggregate of all firms, the calculation of the index m will break down. It will be seen that the index μ is independent of the definition of a " group " or a " commodity " and has in this respect a great advantage.

Indeed, to avoid the ambiguities of defining a " commodity " in contrast to the " product " of a single firm was one of the chief factors in deciding the form of Mr. Lerner's index. Seeing that location, make-up, " goodwill " and other factors introduce an infinite number of possible variations, he comes to the conclusion that physical similarity is not a criterion for a classification of economic goods into groups of " commodities ". In the place of physical similarity he puts " substitutability at the margin ".[2] This is then illustrated by different examples. For instance, if somebody is indifferent as to having a wireless set for £10 or the satisfaction of saving ten Chinese children from starvation, the wireless set in London is the same quantity of the same commodity as £10 worth of rice in China.

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[1] I am indebted to Professor Chamberlin for this and some other criticisms.

[2] Lerner, op. cit., pp. 166 ff.

Does this approach lead to the conclusion that to speak of the "commodity" shoes, or wireless sets, or razor blades becomes theoretically absolutely meaningless? I do not think so. It is, of course, perfectly true that, seen *from the point of view of the individual consumer*, all £10 worth of quantities of goods which (1) he cares to possess at all and (2) are finely divisible will form one group of commodities which are substitutable for each other.

But that does not mean that *from the producer's point of view* a different grouping of economic goods into commodities, viz. one based on physical similarity and similarity in use value, may not be of more importance. There are two things we have to consider. Firstly, if we treat goods desired with equal intensity as equal quantities of the same commodity, it becomes obvious that our classification will vary from individual to individual. The wireless set for £10, which fell into the same "commodity group" as saving ten Chinese children from starvation in the case of the man we quoted in the previous paragraph, will form one "group" with £10 worth of dwelling space in the case of another person, with £10 worth of shirts and pants in a third case, and so on *ad infinitum.* Now, while it is true that any change in supply or price of opportunities to save Chinese children will influence our first man's demand for wireless sets, the demand of the others will remain unimpaired. But his change in demand will be negligible in comparison to total demand, and the change of the price of rice in Shanghai will leave the demand curve for the wireless sets of a particular firm and for wireless sets in general unaffected.

If, on the other hand, the price for one type of wireless sets is changed, most people who were just preparing for the purchase of a certain type of wireless sets will reconsider their choice. In other words, the changed price of saving Chinese children will affect one person's demand for wireless sets; but the changed price of "Alpha" wireless sets will have an effect on the demand of a great number of prospective buyers of "Alpha", "Beta" and other wireless sets. Therefore only the latter change will have a noticeable effect on the demand curves of wireless firms.[1]

The second point is that a great number of consumption goods are not finely divisible. We cannot have a bit more or a bit less of a wireless set. We can either have one or not. And since the great majority of people have only a very limited budget, which is to a great extent spent on necessities, this point becomes important. If I need a pair of shoes, my effective demand is so much concentrated on the article "foot-wear" that my ultimate choice will mainly depend on the prices of alternative pairs of shoes. Seen from the angle of a firm, then, it has a definite meaning to group together its own products with (physically) similar ones of other firms into one larger "commodity" group.

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[1] There remains still the delicate question whether we should include in our "group" all five-valve-sets, all wireless sets, all wireless sets and gramophones, or all musical instruments.

It must also have some meaning, if we can speak intelligently at all of problems of the cigarette, shoe, wireless industry, etc. The construction of the *DD′* curve is, therefore, possible and justified in the context we have discussed earlier. But we may well keep in mind that in a number of cases no obvious gap between one group of products and other products can be found. In such cases we cannot attach any meaning to the *DD′* curve and we cannot calculate the index *m*.

There is another difference between *m* and μ which we have to mention. Whenever the price is not fixed at the equilibrium point (where marginal cost is equal to marginal revenue), Mr. Lerner's index will always measure monopoly power *in force*,[1] while *m* will measure—at least to some extent—*potential* monopoly power.

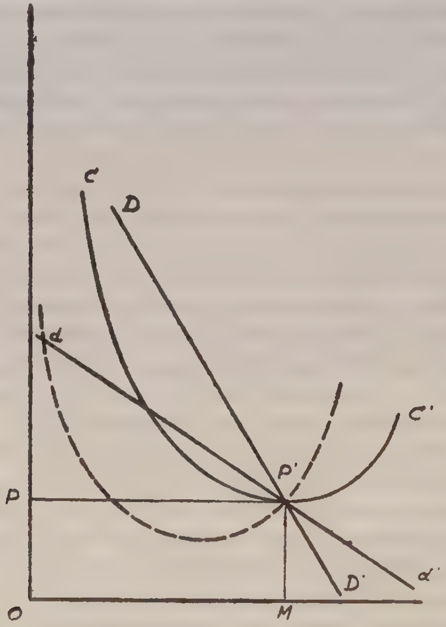

Fig. 7.

In Fig. 7 let *CC′*, *dd′ DD′* represent cost and demand curves of a firm as before. The dotted line represents marginal cost. In the case which is illustrated by our diagram, the price, *OP*, is lower than the equilibrium price would be. We need not care what the reason for this divergence is ; it may be the deliberate policy of a commercial undertaking, the fear of latent competition, the pressure of public opinion, or sheer ignorance. In this case, at any rate, μ would be equal to zero, while *m* would yield a positive value. But here again the difference in the results is a logical outcome of the different sides of monopoly as measured by μ and *m*. That $\mu = 0$ indicates that with a price *OP* and an output *OM* the factors of production are combined in the best possible way by the firm and no social harm is done. The positive value of m, on the other hand, shows that the firm *could* control the market of that commodity to some extent, but does not do so for some reason or other.[1]

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[1] Op. cit., p. 170.

This fact that—political and frictional factors aside—the firm could influence the market to some extent, which it never could with dd' parallel to the abscissa, might be of some theoretical and practical interest in certain contexts. It should be noted, however, that unless dd' and DD' are straight lines the m at the actual price point will be different from the m which we would obtain at the equilibrium point. It may be greater or smaller ; that will depend on the curvature of the two demand curves.

There are other, smaller, differences in the behaviour of the two indices which are, however, too irrelevant to be discussed here. Just one word should be said in conclusion on the treatment of selling costs. Mr. Lerner adopts a technique in dealing with this question[2] which demands a separation of " productive " and " marketing " costs. Such a separation is not easy and will lead to a number of doubtful border cases.

At any rate, in the calculation of m a simpler way can be chosen in dealing with advertising. A firm advertises mainly for two reasons : (1) to increase the demand for its product, (2) to attach people more firmly to its product. Since we are interested in the question of " control over the market " and since costs of production (including selling costs) do not enter into the calculation of m, our index will not be affected by leaving out selling costs. If the demand for the firm's product rises, dd' will be pushed upwards and to the right. If dd' and DD' are straight lines this will leave m unchanged, if they are curved it will change a little in accordance with the increased or decreased hold the firm has gained over the market.[3] As far as (2) is concerned, the firm is directly out to increase its monopolistic control over the market, and if it succeeds we should expect a higher value for m. This will be indeed the case since a success will manifest itself in a steeper dd'.

On the other hand, we might well conceive of circumstances where general advertising leads to better information of the public and thus to more elastic demand curves for the products of all the firms within an industry. Then m will become smaller just because each firm has lost part of its control over the market. At the extreme end we can think of the unrealistic case of all particular demand curves (the dd' curves) becoming parallel to the abscissa, because the public is better informed with advertisements than without. Then m would be equal to zero because a single firm has now lost all its control over the market, and selling costs would be a necessary expenditure to bring the product to the notice of the public just as transport costs are necessary to bring it to the place of the customers. But, as I said before, this case is very unlikely if we take into account the nature of advertisements. Moreover, if that stage were reached the firms would probably switch over to collective advertising.

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[1] In German economic literature the term " Monopoloid " is used in contrast to " Monopol " in order to denote a public undertaking which controls entirely a certain market, but chooses deliberately not to exploit the market (*e.g.* the post office). I believe the term " Monopoloid " was first used by F. Wieser, *Theorie der gesellschaftlichen Wirtschaft*, 1914, sections 31, 42.

[2] Op. cit., pp. 172–174.

[3] This is a very different thing from the question how much the firm can sell at a certain price. Under perfect competition a firm can sell as much as it likes at the ruling price, but its control of the market is zero.

I hope this discussion of the relative merits of indices of monopoly power, though not exhaustive, has shown that we can hardly expect one index to have an " absolute monopoly " in the " market of indices ". There might soon appear some new products in the market, appealing to certain " customers ". But that is only what we should expect with a problem so many-sided as monopolistic competition.

APPENDIX

Since this has been written, Mr. P. T. Bauer has published " A Note on Monopoly " in the May issue of ECONOMICA in which he raises doubts with regard to the meaningfulness of Mr. Lerner's formula. The main point of his argument is to deny the legitimacy of using it in certain aspects of the theory of money and distribution. In so far as he deals with this question, it does not concern us here. But since he also questions the meaningfulness of Mr. Lerner's formula in general, a few words have to be said here.

Mr. Bauer's main argument against the formula is that it is based on the assumption of a sloping demand curve and a unique correlation between price, cost and output. These assumptions are, however—according to Mr. Bauer's article—too remote from real life. He quotes four different categories of imperfect competition, two of which he thinks lie outside the field covered by the assumptions of Mr. Lerner's formula.

These two categories are:

(1) The case of branded commodities with a price which remains rigidly fixed even if marginal costs vary considerably.

(2) The case of monopolistic organisations among primary producers with a centrally determined quota and individual selling organisations. In this case each of the individual producers faces a demand curve of infinite elasticity up to the point of the production quota.

These two cases do not, however, rob Mr. Lerner's formula of its importance, if we keep its meaning strictly in mind. As far as case (1) is concerned there is, of course, a sloped demand curve (branded commodity !), but it is part of the business policy not to move along this curve. One rather prefers to move the whole demand curve to the right by advertising, or to adjust the cost curve by changing the quality of the product. But due to the fact that the demand curve *has* a slope—even though we may not be able to determine its shape—we shall, at any moment, have a combination of factors which diverges from the " ideal " combination under perfect competition. This divergence will show itself in an excess of price over marginal cost and is, therefore, adequately measured by the formula. That the " degree of monopoly " will change often under such conditions is no argument against the formula. The formula is a static one, and every change in conditions will be reflected in a change in the " degree of monopoly "—instead of a change in price as would be the case under perfect competition.

In case (2) the situation is different. Here the demand curve for each individual producer is indeed parallel to the x-axis and no value can be obtained by Mr. Lerner's formula. This is indeed a case which might be included in the group which we mentioned on p. 31 above, and for which we recommended the use of Mr. Bain's formula.

But it is doubtful whether even this should be done. We speak of the " degree of monopoly " of an individual firm, meaning by firm a complete and independent business unit. If the output for the individual producer is determined by a central body, it becomes rather meaningless to regard him as an independent firm, at least in this context. He becomes more a sort of a technical manager who tries to produce a given output at the lowest possible cost. It would, therefore, be more sensible to regard the whole organisation as one monopolist. But that leads us back to our sloping demand curve and Mr. Lerner's formula becomes once more applicable.

There are also some other minor points which Mr. Bauer raises against the formula. It would take us too long to deal with them in detail. But they, too, do not invalidate the idea of measuring the " degree of monopoly ", if the proper meaning and the static nature of the formula are kept in mind.

Altogether it can be said that Mr. Bauer's arguments do not prove the uselessness of Mr. Lerner's formula. He has only shown that the fulness of economic life cannot be completely reflected in a necessarily abstract formula. But this is a general problem of methodology which is in no way restricted to the field of imperfect competition.

Technical Progress, Costs and Rent[1]

By Gordon F. Bloom

I

Over one hundred and twenty years ago, Ricardo in his *Principles*[2] set forth the proposition that technical progress could have two possible effects upon the rent of land. Either his study was so thorough that the topic was thought to be closed, or else the subject was not felt to be of sufficient importance ; for, during the intervening century, few significant alterations or additions were made to his thesis. It is only within the last few years that this problem has again been taken up, perhaps unwittingly. The new traveller upon an old, but obscured, trail is Professor Cassels, who deals with it in his article, "On the Law of Variable Proportions", which appeared in *Explorations in Economics* in 1936. Without seeming to realise the application of his analysis to Ricardo's problem, Cassels changes only slightly Ricardo's illustrations : Ricardo's "manure" becomes Cassels' "water"; Cassels' "scarecrow" is a reincarnation of Ricardo's "improvements in agricultural implements".[3] A comparison of the two explanations is not only enlightening for economic theory, but also it has this merit : it makes one appreciate more the keen insight of Ricardo, who was able to deal with the difficult problem despite the fact that economics as a science was still in its infancy.

II

RICARDO'S EXPLANATION

For Ricardo, improvements in agriculture are of two kinds : those which increase the productive power of the land, and those which enable us by improving our machinery to obtain its produce with less labour. Both of them lead to an increased output and to a consequent fall in price ; therefore both affect rent, but they do not affect it equally. The former, which include, for example, more skilful rotation of crops, or the better choice of manure, save land ; the latter save labour or capital. John Stuart Mill, in reiterating Ricardo's conclusion, states : "Some (improvements) enable the land to yield a greater absolute produce without an equivalent increase of labour ; others have not the power of increasing the produce, but have that of diminishing the labour and expense by which it is obtained ".[1]

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[1] I am indebted to Professor Fritz Machlup for the suggestion of the topic and for his guidance in the preparation of this article.

[2] Ricardo, *Principles of Political Economy and Taxation.* E. P. Dutton and Co., New York, 1929, p. 42.

[3] See Ricardo, op. cit., p. 42, *et. seq.*, and Cassels, op. cit., pp. 230 and 231.

CASSELS' ELABORATION

Professor Cassels' article was not really concerned with dynamic analysis such as the effects of inventions and improvements, but was confined to static analysis, in particular with the study of the law of proportions. Yet, his considerations concerning the effect upon productivity of adding a third factor to a combination of two given factors can be easily translated into considerations concerning the effects of improvements. We simply have to assume that the possible application of the third factor has just been newly invented.

In place of Ricardo's first case, where land is saved, Cassels brings this example. Water is added and increases the capacity of the land to combine with seed (just as did Ricardo's manure). Cassels makes his exposition more complete by showing the effect of these changes upon the total productivity curves. The water has the effect of being, in Cassels' terms, " attenuative " to the variable factor (seed) and " augmentative " to the fixed factor (land). This results in a heightening and stretching out horizontally of the curve of total output (measuring the variable factor horizontally and output vertically). Total product is not only greater at every amount of the variable factor, but also the points of highest marginal and highest total productivity occur at a larger amount of variable (seed) than previously. Corresponding to Ricardo's example of the improved machinery is Cassels' example of the scarecrow. If the addition of the scarecrows as a third factor reduces the amount of seed lost to birds, the physical productivity of the seed will be increased and there will be a saving of seed. Cassels calls this " augmentative " to the variable factor and " attenuative " to the fixed factor. It has the effect of compressing the curve of total output horizontally. This means that we get the same product at every point on the total productivity curve with less seed. A third possible effect, which Ricardo did not foresee, and which is theoretically possible, is that in which the third factor is neutral in its effects upon the mutual combining capacities of the other two. Cassels does not cite an example here, but one can easily be thought of. If an improved threshing machine is introduced which reduces the amount of kernels lost in threshing, it will have the effect of increasing total product. Since the proportion of land to variable is unchanged, the increase cannot be attributed solely to either factor and so the effect of the improvement may be called neutral. In this instance, the curve of total output would be raised, but the points of highest total, average and marginal outputs would still occur at the same amount of variable factor as previously. These interrelations are shown in Diagram I, which consists of hypothetical curves.

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[1] Mill, *Principles of Political Economy*. Longmans, Green and Co., London 1921, p. 183.

III

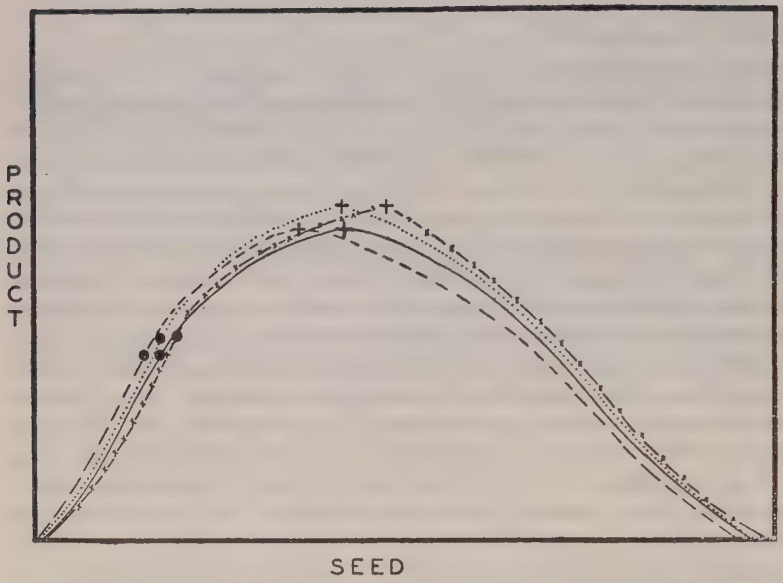

DIAGRAM I: TOTAL PRODUCTIVITY CURVES

——— ORIGINAL
— — — AUGMENTATIVE TO VARIABLE
—x—x— AUGMENTATIVE TO FIXED
·········· NEUTRAL
+ POINT OF HIGHEST TOTAL OUTPUT
● POINT AT WHICH MARGINAL PRODUCT IS HIGHEST

The Problem and the Assumptions

From the point of view of rent, however, what is of especial interest is the effect of these improvements upon marginal cost. A detailed study of this phase of the problem seems to have been neglected and therefore it is the main purpose of this article to devote its attention to the effect that the introduction of an agricultural invention would have upon costs and price, and to use as its foundation what has been suggested by Ricardo and recently added by Cassels.

We may trace the effect of an agricultural invention briefly as follows: first, there is a change in the cost curves with given prices of the factors; secondly, an increase in output is planned at the given prices of the factors and at the given price of the product; thirdly, the change in the demand for the factors and the supply of the product changes the prices of the factors and of the product; then output is adapted to the new cost and demand curves.

In this paper, which must of necessity be brief, we shall introduce certain assumptions: (1) All land is considered to be alike. (2) The elasticity of supply of land in general is taken to be zero, so that rent is determined entirely by the intensive margin. Likewise, the elasticity of supply of land to the specific use is also assumed to be zero, i.e. no land can be drawn away from other uses. (3) The price of the variable factors is assumed to be constant. All these are simplifications, of course, but to drop them would only obscure, rather than invalidate, the conclusions which will be reached.

Derivation of Productivity Curves

In order to study the marginal cost curves, it is first necessary to draw up a productivity schedule (Table 1).[1] Then, we assume, to simplify our calculations, that the seed stands for all variable cost; all other incidental variable costs are conceived to vary proportionately with the cost of the seed. The planting of the seed is one of these proportional costs. To simplify further, we assume that the improvements cause no additional expense: we may suppose that the farmer's children sprinkle the water and dress the scarecrows. From the point of view of the farmer, the children's sustenance is a fixed cost, and therefore will not enter marginal cost.

Now let us examine the case which Cassels names "augmentative" to the variable factor and "attenuative" to the fixed factor. The improvement which brings this about is the erection of scarecrows which reduces the amount of seed lost by, say, 10 per cent. of the total sown. This calculation should cause us no difficulty, for we now obtain on the same area of land the same product at every point on the productivity curve with 10 per cent. less seed (Table 2). As Cassels has pointed out, this shifts the new total productivity curve to the left. The points of highest marginal and highest total productivity are both shifted to the left so that they now occur with less of the variable, seed, but their height on the vertical axis has not been changed. Diagram II shows this clearly.

Next we come to the example where the application of water increases the ability of the land to combine with seeds. In Cassels' language, it is "augmentative" to the fixed and "attenuative" to the variable factors. How can we show this in terms of productivity and cost curves? We know that the consequence will be that land is saved. However, since the amount of land does not figure in our calculations, it is not immediately clear how we can indicate that the productivity of the land is increased. We cannot remove some of the land if we do not know how much is there in the first place. But there is a way: we know the supply of land is inflexible, but let us merely *imagine* that it were possible to increase the amount of land used by 10 per cent. With this larger piece of land, we use

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[1] Cassels did not make use of tables in connection with his analysis.

10 per cent. more seed and get 10 per cent. more product (assuming a homogeneous production function of the first degree). This process is shown in Table 3. Having done this, we let Ricardo apply his manure or Cassels his water—and what happens? We save land, of course. We can withdraw one-eleventh of our land and still get the same product. To show this, it is only necessary to drop our assumption in Table 3 that this is a larger piece of land, instead consider it to be the same as that used in the previous example, and we have our problem solved. Referring to Diagram II again, we see that the effect of the water upon the total productivity curve is to raise and shift to the right the points of highest marginal and highest total output.

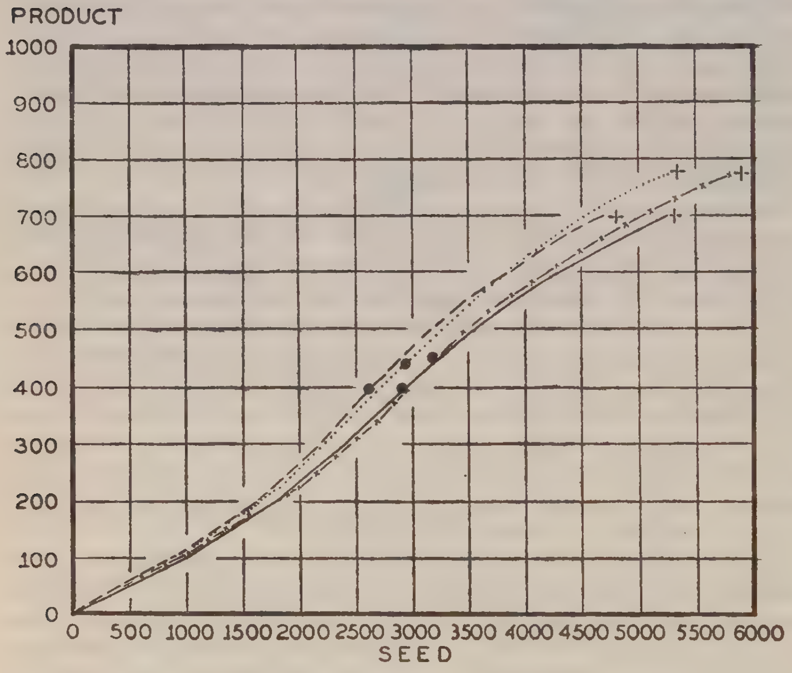

DIAGRAM II: TOTAL PRODUCTIVITY CURVES DERIVED FROM TABLES

——— ORIGINAL
— — —·— AUGMENTATIVE TO VARIABLE
—x—x— AUGMENTATIVE TO FIXED
·········· NEUTRAL
+ POINT OF HIGHEST TOTAL OUTPUT
● POINT AT WHICH MARGINAL PRODUCT IS HIGHEST

ORIGINAL FIGURES OF PRODUCTIVITY AND COST SCHEDULES

	Seed	Total Product	Average Product	Marginal Product	Quantity	Total Variable Cost	Average Variable Cost	Marginal Cost
TABLE 1. Before the Innovation.	1000	100	·100	·100	100	1000	10·00	10·00
	1775	200	·113	·129	200	1775	8·88	7·75
	2375	300	·126	·167	300	2375	7·92	6·00
	2925	400	·137	·182	400	2925	7·31	5·50
	3525	500	·142	·167	500	3525	7·05	6·00
	3875	550	·142	·143	550	3875	7·04	7·00
	4275	600	·140	·125	600	4275	7·12	8·00
	4725	650	·138	·111	650	4725	7·27	9·00
	5250	700	·133	·095	700	5250	7·50	10·50
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Table I is derived as follows :—

(*a*) Columns 1 and 2 are assumed.

(*b*) Column 3 is found by dividing total product by seed.

(*c*) Column 4 equals the differences in total product divided by the differences in amounts of seed.

(*d*) According to the assumptions on page 43, seed, or seed multiplied by a constant factor, represents the total variable cost. Therefore column 1 becomes column 6, and column 2 becomes column 5.

(*e*) Column 7 equals column 6 divided by column 5.

(*f*) Column 8 equals the differences in total cost divided by the differences in quantity.

PRODUCTIVITY AND COST SCHEDULE SHOWING THIRD FACTOR AUGMENTATIVE TO SEED

	Seed	Total Product	Average Product	Marginal Product	Quantity	Total Variable Cost	Average Variable Cost	Marginal Cost
TABLE 2. After the Innovation.	900·00	100	·111	·111	100	900·00	9·00	9·00
	1597·50	200	·125	·143	200	1597·50	7·99	6·98
	2137·50	300	·140	·185	300	2137·50	7·12	5·40
	2632·50	400	·152	·202	400	2632·50	6·58	4·95
	3172·50	500	·158	·185	500	3172·50	6·34	5·40
	3487·50	550	·158	·159	550	3487·50	6·34	6·30
	3847·50	600	·156	·139	600	3847·50	6·41	7·20
	4252·50	650	·153	·123	650	4252·50	6·54	8·10
	4725·00	700	·148	·106	700	4725·00	6·75	9·45
	4567·50	685	·150	·111	685	4567·50	6·67	9·00

PRODUCTIVITY AND COST SCHEDULE SHOWING THIRD FACTOR AUGMENTATIVE TO LAND

	Seed	Total Product	Average Product	Marginal Product	Quantity	Total Variable Cost	Average Variable Cost	Marginal Cost
TABLE 3 After the Innovation.	1100·00	110	·100	·100	110	1100·00	10·00	10·00
	1952·50	220	·113	·129	220	1952·50	8·87	7·75
	2612·50	330	·126	·167	330	2612·50	7·92	6·00
	3217·50	440	·137	·182	440	3217·50	7·31	5·50
	3877·50	550	·142	·167	550	3877·50	7·05	6·00
	4262·50	605	·142	·143	605	4262·50	7·04	7·00
	4702·50	660	·140	·125	660	4702·50	7·12	8·00
	5197·50	715	·138	·111	715	5197·50	7·27	9·00
	5775·00	770	·133	·095	770	5775·00	7·50	10·50

PRODUCTIVITY AND COST SCHEDULE SHOWING THIRD FACTOR NEUTRAL TO BOTH FACTORS

	Seed	Total Product	Average Product	Marginal Product	Quantity	Total Variable Cost	Average Variable Cost	Marginal Cost
	1000	110	·110	·110	110	1000	9·09	9·09
	1775	220	·124	·142	220	1775	8·07	7·04
TABLE 4	2375	330	·139	·183	330	2375	7·20	5·45
	2925	440	·150	·200	440	2925	6·65	5·00
After the Innovation.	3525	550	·156	·183	550	3525	6·41	5·45
	3875	605	·156	·157	605	3875	6·40	6·36
	4275	660	·154	·138	660	4275	6·48	7·27
	4725	715	·151	·122	715	4725	6·61	8·18
	5250	770	·147	·105	770	5250	6·82	9·54

Lastly, we come to the example of the threshing machine, which has the effect of being "neutral" upon the mutual combining capacities of the other two factors. Suppose that the new machine has some apparatus by which kernels ordinarily lost are now retained. If we assume this saving to be 10 per cent., then the product is increased 10 per cent. at every amount of the variable factor employed (Table 4). Since the proportion of land to the variable factor, seed, is unchanged, we cannot attribute the increase in product either to the one or to the other, and so we say it is neutral. The effect of this is to raise the curve of total output, but "the points of highest total, average, and marginal outputs will merely be shifted to new positions in the same vertical lines."[1] This curve is shown in Diagrams I and II in relation to the others.

EFFECT UPON COST CURVES

Having accomplished this, we can proceed to examine the change in the marginal cost curves. We find that where there is a saving of seed, i.e. of the variable factor, the marginal cost curve falls in such a way that the lowest point on the new curve is directly below the lowest point on the original curve (Diagram III). When land is saved, however, the new curve is not only lower for the significant portion—that is, for the rising part of the curve[2]—but it is also shifted to the right. The point of lowest marginal cost in this case now occurs at a larger output, while in the example where some of the variable factor was saved, it occurs at the same amount of output. An interesting point is that the marginal cost curve resulting from the improvement which had the effect of being neutral combines in itself the effects that we have noted in our two other examples. Where the curve representing a saving of capital was only lowered, this is shifted; and where the curve showing a saving of land was only shifted, this is lowered too. Furthermore, it tends to increase output more than either of the two former cases. If in Diagram III we allow the line DD′ to represent the price (i.e. the demand and marginal revenue curve from the point of view of the individual farmer), it can be seen that, other things being equal,[1] the addition of water will tend to increase output more than did the addition of scarecrows.

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[1] Cassels, op. cit., p. 231.

[2] The rising part of a productivity curve or the falling part of a cost curve would of course never be chosen by a rational producer, particularly in this case where the fixed factor, land, is divisible.

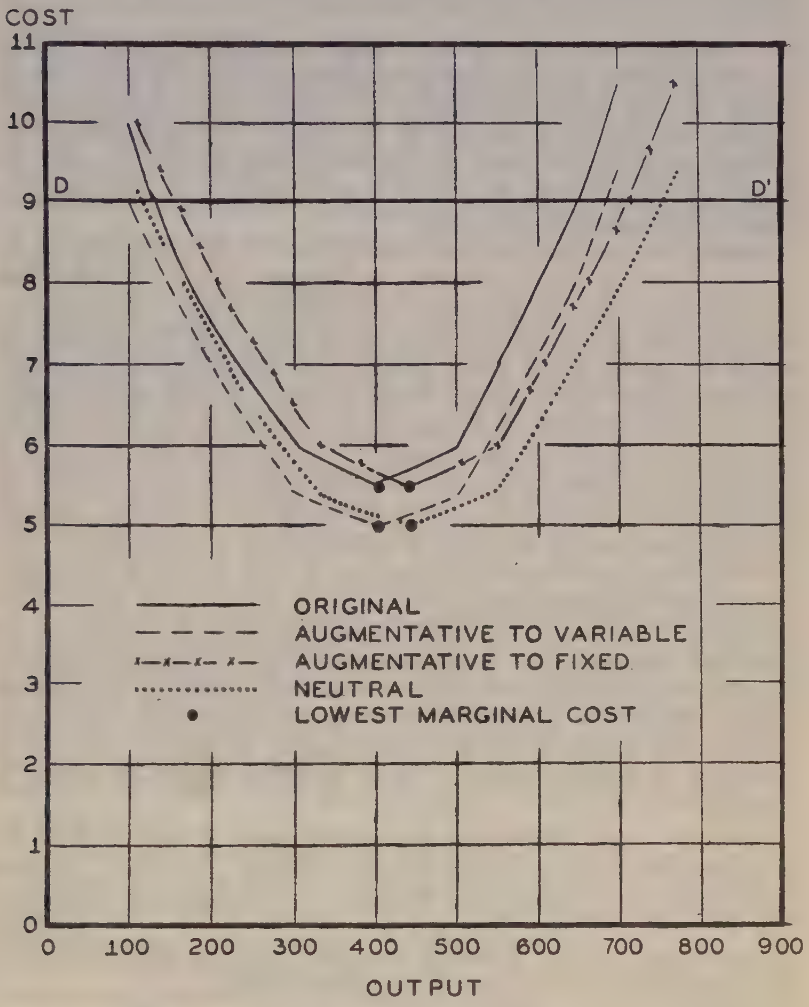

DIAGRAM III: MARGINAL COST CURVES

Ricardo said that " there are improvements which may lower the relative value of the produce without lowering the corn rent, though they *will lower* the money rent of land. Such improvements do not improve the productive powers of the land, but they enable us to obtain its produce with less labour."[1] This corresponds to our second example where we saved seed by using scarecrows. Does it follow that money rent will be lowered ? No. This depends upon the elasticity of demand for the product as compared with the relative fall in the cost curve.

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[1] This assumes that the horizontal shift of the marginal cost curve due to the former improvement is of the same relative magnitude as the vertical drop due to the latter improvement. One other thing must be considered—the slope of the cost curve, which will be dealt with later.

Let us turn once more to our original marginal cost curve, before the introduction of improvements (Diagram III). If the price is $9.00, then the farmer will produce 650 units at $9.00 each ; his total receipts, therefore, will amount to $5,850.00. His average cost[2] for this output is $7.27 (Table 1) ; his total costs (from the table) are $4,725.00. Subtracting $4,725.00 from $5,850.00, we find that his gross rent amounts to $1,125.00.

Now let us examine the curve which results from the use of scarecrows which save seed. According to Diagram III, we find that this curve crosses the demand curve DD′ at 685 units. Knowing the marginal cost of this output to be $9.00 and given the quantity as 685, it is possible to calculate the total cost and also the average cost for this amount[3] (see Table 2). From the point of view of the farmer, rent will rise, since he, as an individual competitor, assumes that he is facing an infinitely elastic demand. His expected rent amounts to $1,597.50, i.e. revenue $6,165.00 minus cost $4,567.50 (Table 2). But the actual rent which he will receive will not be so large, because the increased output can only be marketed at a lower price. The effect of this improvement upon the rent of land cannot be arbitrarily stated, for it depends upon the elasticity of demand. If the relevant elasticity of demand were equal to unity, i.e. if the price for the increased output fell to $8.54 so as to keep the amount received constant,[4] then actual rent would still be greater than at the previous output ($5,850.00 minus $4,567.50 equals $1,282.50). Rent previously was $1,125.00; now it has risen to $1,282.50; thus for an elasticity of demand equal to unity, Ricardo's statement would be wrong.

For rent to be unchanged, price would have to fall to $8.31 for the increased output. Using simple arithmetic, we reach this final conclusion for our particular example. If the elasticity of demand for the product is more than .70, rent will rise ; if it is less than .70, rent will fall.[5] Thus Ricardo's statement was too broad and must be reconsidered in the light of our examination.

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[1] Ricardo, op. cit., p. 44. Italics are mine.

[2] Average variable cost (not including rent).

[3] Given the total cost of 650 units as $4,252.50 (Table 2), and the marginal cost of 685 units as $9.00, we multiply 35 (the difference in output) by $9.00 (the marginal cost) and we get $315.00 as the cost of the additional 35 units. Adding this to $4,252.50, we find the total cost of 685 units to be $4,567.50.

[4] The "relevant" elasticity refers here to a transformed demand curve with prices f.o.b. farm.

[5] Taking for the sake of simplicity first differences instead of first differentials, we calculate as follows: Price falls from 9.00 to 8.31, hence by ·69; output increases from 650 to 685, hence by 35. 35/650 divided by 69/900 equals ·70.

Now let us compare the effect upon rent in this case with that in our third example, where productivity of the land is increased. Looking at Table 3, we see that if the farmer expects a price of $9.00, he will produce 715 units. His expected total revenue will be $6,435.00 ($9.00 × 715) and his costs amount to $5,197.50. Therefore, his expected rent rises to only $1,237.50, whereas in the case where seed was saved, it amounted to $1,597.50. If the elasticity of demand equals unity (i.e. if the price for the increased output falls to $8.18), actual money rent *falls* to $652.50, whereas it would have risen, with the same demand elasticity, in the case where seed was saved. For rent to remain constant, the price for the increased output would have to fall to $8.84. To sum up, we find that in the case where the third factor is " augmentative " to the land, if the elasticity of demand is more than 5.6 rent will rise and if it is less than 5.6, rent will fall.[1]

Therefore we reach this conclusion: that an invention which has the effect of being " augmentative " to the fixed factor and " attenuative " to the variable factor is very likely to lower rent, except in the unusual case where the demand is very elastic. On the other hand, if the improvement results in being " augmentative " to the variable factor and " attenuative " to the fixed factor, it is very probable in actuality that rent will rise. From our specific examples, we can derive this general rule: that in all cases where the elasticity of demand over the relevant range is equal to unity, an improvement which results in saving land will lower rent, while an improvement which saves the variable factor will increase rent. This follows because in the case where land was saved, the new marginal cost curve is shifted to the right, so that the average cost at the new larger output is the same as the average cost was at the old output. However, total cost will be greater than formerly, because we multiply average cost by a larger output. Therefore, if costs are greater at the new output than at the former, it can be seen that so long as total revenue remains constant, i.e. if the elasticity of demand is equal to unity, rent must decrease.

On the other hand, where the tendency is for the curve to shift downward due to a saving of the variable factor, costs are lower for the increased output and so, if total revenue remains constant, rent must rise.

The more the innovation tends to shift the new marginal cost curve to the right, rather than to lower it, the more elastic must be the demand in order that rent should not fall. With a given elasticity of demand, the tendency for rent to *fall* will be *greater*, the *greater* is the *shift to the right* of the cost curve; and the tendency for rent to *rise* will be *greater*, the *greater* is the *downward shift* of the cost curve. One other factor plays a part in determining the effect an improvement will have upon rent. That is the slope of the marginal cost curve (supply curve): the more elastic the cost curve, the more will output be increased with a given fall in the cost curve. Thus, there are three factors involved in our problem—the elasticity of supply, the elasticity of demand, and the degree of shift of the cost curve.

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[1] Using the method described in the last footnote: price falls from 9·00 to 8·84, hence by ·16; output increases from 650 to 715, hence by 65. 65/650 divided by 16/900 equals 5·62.

IV

RENT IN THE NEW EQUILIBRIUM

The conclusions which have been reached thus far have been derived from a study of a situation which is only a temporary one. It is really a transitional stage: for eventually a new equilibrium will tend to be established with marginal cost once more equal to price. However, it must be emphasised that in reality this equilibrium is only a point about which price and output tend to fluctuate, but which is not likely ever to be reached. In our examples thus far, we have seen that subsequent to introduction of the technical improvement, output would be increased and the price consequently would fall. Next output would be curtailed so that marginal cost could once more be equated to price. Output might be curtailed too much so that the price would rise; then output would be increased again, and this process might continue. However, barring some situations treated in the recent discussions of the cobweb theorem, the tendency to equilibrium is there, and so we now turn our attention to rent in this new equilibrium position.

For the sake of simplicity, let us first assume that the elasticity of demand for the product is equal to unity, so that the total revenue received remains constant. Since we wish to compare rent in the new equilibrium with rent in the old equilibrium, we turn back to our first case, and we find in this example that the total revenue received amounted to $5,850.00.

Likewise, we know that if the elasticity of demand were equal to unity, then in the case where seed was saved (Table 2) the price for the increased output (685 units) would fall to $8.54.[1] In the new position, marginal cost will be equal to price and therefore will also be $8.54. But production will be curtailed; for at a price of $8.54 the farmer will produce only about 665 units,[2] assuming that no other changes have occurred to the cost curve since the introduction of the scarecrows. Knowing the marginal cost and output, it is then possible to calculate the total cost, as was done previously, and we find that the total cost of producing 665 units would be $4,380.60. Subtracting this from the revenue of $5,850.00, we find that rent now amounts to $1,469.40, an increase of $344.40 over that in the original case.

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[1] See page 48.

[2] This figure is obtained by drawing a line parallel to the x axis at a price of $8.54 and observing where the cost curve representing the saving of seed (shown by a broken line) crosses it.

On the other hand, when land is saved (Table 3), we find the opposite to be true. Here, output increased to 715 units, and if the elasticity of demand had been equal to unity, the price would have fallen to \$8.18.[1] Following the same procedure as before, we find that at this price the farmer would produce only 675 units. For this amount, his total cost is equal to \$4,825.20. Subtracting this from the revenue of \$5,850.00, we discover that in this case rent falls by \$100.20. Thus our former conclusions are again borne out. In both positions—transitional disequilibrium and new equilibrium—an improvement bringing about a fall in the cost curve tends to increase rent, while an improvement which merely results in a shift to the right of the cost curve tends to lower rent.

V

THE ROLE OF SUBSTITUTABILITY

As has been mentioned before, Ricardo considered that " improvements in agricultural implements, such as the plough and the threshing machine, economy in the use of horses employed in husbandry, and a better knowledge of the veterinary art "[2] are of the type that save capital or labour, rather than land. Then he adds that " to obtain the same produce, less land cannot be cultivated ".[3] This latter statement is mistaken, however, unless we introduce a specific condition : that the elasticity of substitution of land in this case is equal to zero. In all other cases, it would be possible to use more[4] of the factor which could be saved, to withdraw some land, and still to get the same product. For example, to use Ricardo's reference to husbandry, suppose 60 horses can give the same product on 100 acres of land that 80 horses had previous to the application of a better knowledge of the veterinary art. Ricardo would say that if land is withdrawn, it is not possible to get the same product, despite the introduction of the improved horses. However, most factors are substitutable to some degree and therefore it would be possible to withdraw some land, work the remainder more intensively, and still get the same product. For instance, to elaborate our arbitrary example, suppose we withdraw 10 acres of land and work only 90 acres, but use 85 improved horses instead of only 60. If the elasticity of substitution is high between these two factors, we may still get the same product, despite the saving in land. If it is not so high, it would be necessary to use still more improved horses. The point is, however, that there is some amount of the second factor which can be applied so as to get the same product with a saving of land. The greater the elasticity of substitution, the smaller will be the additional amount of the second factor which must be added with a given withdrawal of land to keep the product constant. The proportion which is finally chosen depends, of course, upon the cost of the factors. If land were very scarce, while horses were not, it is very probable that an attempt would be made to save land, although the effect of the improvement was to save labour or capital. Thus, Ricardo's statement that less land cannot be cultivated is only true if he assumed that land was a limitational factor, that is, a factor whose elasticity of substitution is zero.

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[1] See page 49.

[2] Ricardo, op. cit., p. 44.

[3] *Ibid.*, p. 44.

[4] More than we needed to use for a given amount of output with unchanged amounts of the other factor. This implies that for a given amount of output, you use less land.

Our conclusion, then, is this: that there is nothing inherent in most improvements that determines what their effect will be upon the productivity of the factors. Even water, as Cassels mentions in his article,[1] could be augmentative to the seed, rather than to the land. An improvement in machinery is not always labour-saving; it may be land-saving; or it may be neutral in its effect.[2] Secondly, even if the effect of the invention is to save one factor, it may be used in such a way as to save the other, if the relative costs of the factors makes this profitable and if the elasticity of substitution is such as to make this possible.

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[1] Cassels, op. cit., pp. 230–231.

[2] An example would be the improved threshing machine, mentioned earlier in this article, which had the effect of being neutral upon the other two factors. Ricardo, however, considered it to be an example of an invention that saves labour and capital.

Technically, an improvement may be capable of saving the fixed factor, the variable factor, or both, depending upon its mode of application. Once applied, however, the improvement must be *either* augmentative to the fixed factor, augmentative to the variable factor, or neutral (in which case it saves both factors). It cannot, for example, be said to be land-saving at a certain ratio of seed to land and seed-saving at another ratio. The criterion which determines the classification of an improvement is the effect it has upon the phase of diminishing returns of the productivity curve: if it shifts the point of highest average product to the left (on a graph where the variable factor is plotted along the x-axis), it is augmentative to the variable factor: if it shift to the right, it is augmentative to the fixed factor: and if it raises the curve of total output, but merely shifts the point of highest average returns to a new position in the same vertical line, it is neutral in its effect upon the combining capacities of the two variables. Obviously, an improvement must have one or the other of these consequences, which are mutually exclusive, and therefore the classification of the improvement is uniquely determined. What the improvement does to other points of the total productivity curve is irrelevant: the decisive consideration is its effect upon the phase of diminishing returns.

The Monetary Theory of D. H. Robertson

By J. R. Hicks

THE reviewer of Professor Robertson's *Essays*,[1] especially when (as in the present case) he comes to his task a year after its publication, is confronted with something different from the usual task of reviewing. Either in their collected form, or as originally published, these essays will already be familiar to most persons who are likely to read a review in ECONOMICA. They have already won an assured place in economic literature, which in this instance is English literature too; for may we not say that Robertson at his best is unmatched this side of Adam Smith for the combination of profound wisdom with literary charm? The present volume contains a larger proportion of these best things than any of its predecessors; their clarity and humanity it would be superfluous to praise. My own favourite is that Harvard address, characteristically entitled "The Snake and the Worm". I do not know how often I have read it; I shall go on reading it until I know it by heart.

Yet the way to these heights has not been won without effort; we have in this volume plenty of the rude climbing as well as the clear air of the mountain tops. The four essays, "Saving and Hoarding" (1933), "Industrial Fluctuation and the Natural Rate of Interest" (1934), "Effective Demand and the Multiplier" (1936) and "Mr. Keynes and the Rate of Interest" (1939), stand by themselves apart from the rest. They are a formidable series; one hopes that they will not scare off too many readers who would be delighted and fortified by the other essays. But they are the author's workshop, into which he invites us. My business here must clearly be to accept the invitation.

There is contained in these four essays—and in the less alarming "Survey of Modern Monetary Controversy" (1937) which must be read with them—the outline of a theory of money and fluctuations second to no existing theory in its depth and its fairmindedness. But the theory is never set out in so many terms; we get to know it more by contrast than in itself. In the first essay of the quartet we see the impact of the *Treatise on Money* on the mind of the author of *Banking Policy and the Price-Level*; in the second he has been

[1] *Essays in Monetary Theory* By D. H. Robertson. (P. S. King.) 1940. x + 234 pp., 11s. 6d. [The late publication of this review is caused by the death through enemy action of Lord Stamp, who had undertaken to review this work.—*Eds.*]

sent back by Hayek to the work of "that very great man" Knut Wicksell; the third and fourth are presented as criticisms of the *General Theory of Employment.* Yet the criticism contained in these essays is perhaps less valuable than the positive theory which they reflect. Professor Robertson has never set out a positive theory since the "prehistoric" days of *Banking Policy and the Price Level*; but his thought has developed very notably, even if he has kept a very firm hand on the steering wheel, and kept very determinedly to the middle of the road.

For my own part, I rather regret the amount of criticism contained in these essays—particularly in that printed at the beginning of the book, the London lectures of 1939. Of all great economists, Mr. Keynes is probably the most Impressionist; the *General Theory*, in particular, needs to be read at a distance, not worrying too much about details, but looking prinicipally at the general effect. At least, that is how I have read it myself, and it seems that as a result I retain a higher opinion of it than Professor Robertson does. His own criticisms sometimes remind me of a man examining a Seurat with a microscope, and denouncing the ugly shapes of the individual dots. It is very probable that the Impressionist method is not particularly appropriate to the higher economics (though it may be suitable enough for more popular writing); however, it is Mr. Keynes's method, and in his hands it has some countervailing virtues.

It is impossible, within the bounds of a review, to give even a sketch of the positive theory which is the other side—the more interesting side—of these criticisms. All that can be done is to select certain points on which to comment. I shall select three points: Professor Robertson's theory of Saving and Investment, his theory of the Rate of Interest, and his Double Theory of Trade Crises.

(1) Disputes about the meanings of Saving and Investment may appear to be arid, but they are in reality of immense importance, because they involve decisions about definition which determine the whole course upon which theory will subsequently proceed. Professor Robertson's name is particularly associated with a set of definitions which seem to have pleased hardly anyone but himself—and which seem to have satisfied even him in diminishing degree as time has gone on, for in the later essays he sets less store by them. This does not look a very promising beginning. But when one looks, not at the precise form of the definitions, but at the class to which they belong, the picture is very different. "On my definition, Saving and Investment are not necessarily equal, and it is on the *difference* between them that the *movement* of the price level (not, as in Mr. Keynes's scheme, the *state* of the price level as compared with some normal state) depends" (p. 80). That protest was made against the Mr. Keynes of the *Treatise*; it stands (with changed emphasis) against the *General Theory*; but since the time of the *General Theory* the need for definitions of the Robertsonian sort has been increasingly

felt. Whatever the defects of the Swedish *ex ante–ex post* analysis (defects which are searchingly exposed on p. 7 of this book), the popularity of that analysis among economists does mark a swinging back of opinion towards the Blondinian middle of the road where Professor Robertson has so steadily walked.

I may perhaps be allowed to allude to one particularly striking example of this rallying. Mr. Kaldor's " Model of the Trade Cycle "[1] is perhaps the only strikingly original contribution to the theory of fluctuations which has seen the light since September, 1939; it is based on a proposition which is said to be " derived from Mr. Keynes's *General Theory* although not stated there in this form "—the proposition that "economic activity always *tends* towards a level where Savings and Investment are equal". But this proposition is not Keynes at all—it is pure Robertson, and so is the use which Mr. Kaldor makes of it ! The parallel between Mr. Kaldor's constructions and Professor Robertson's paper on the Natural Rate is indeed extraordinarily close and most suggestive. So is the exact coincidence between Professor Robertson's criticism of the Multiplier and that which is implied in Mr. Kaldor's argument. I cannot help suspecting that what has happened to Mr. Kaldor is something which I recognise from my own experience when I was writing *Value and Capital.* The effect on Mr. Kaldor's mind, as well as on my own, of the *General Theory* has been profound; but we have each of us been led, sometimes consciously, sometimes unconsciously, through Keynes to Robertson.

The search for the ideal definitions of Saving and Investment has now been narrowed down, and narrowed down to something in the near neighbourhood of Professor Robertson's original definitions. I still do not think that those definitions will quite do; they were concerned too much with constancy of the price level, too little with employment, income and "business activity", which have come to seem more important. It is even uncertain whether we want equilibrium between Saving and Investment to mean *constancy* of anything—at least in any stricter sense than is implied in Marshall's short-period equilibrium: a situation of which we can say that it would go on indefinitely if other things remained equal, although in fact we know that mere lapse of time is bound to alter some of the things we have put into the pound. But the things we require of our definition are now known—surely the elusive thing must be only just round the corner!

(2) My own feeling still is that what Professor Robertson has to say about the Rate of Interest is less important than what he says about Saving and Investment; but I say it without much confidence, though I notice that in some moods (pp. 126, 147) he has a " private heresy " in that direction himself. He has no difficulty in showing that the theory of Liquidity Preference is a very rough and ready

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[1] *Econ. Jour.*, March, 1940, p. 78.

description of the way the forces governing interest work; he emphasises (as I should readily agree) that there are three margins at work, not two (pp. 16–17); he shows very conclusively (pp. 21–24) that whereas a change in the supply of money due to the creation or destruction of bank credit operates first on interest and thence on prices, a change in the velocity of circulation operates directly on prices and thence on interest. It is clear that the Liquidity Preference technique is not very well adapted for dealing with this last case, since it can only treat dishoarding into commodities as if it were dishoarding into securities combined with dissaving. There is a disturbance of the Saving-Investment relation as well as a disturbance of the Liquidity Preference relation; both " curves " have shifted, so that you cannot tell where you are. But has Professor Robertson yet made it quite clear to us how we are to overcome the difficulty ? We must remember further that it has yet to be shown that the rise in interest rates which often accompanies a trade boom is a consequence of dishoarding, and not directly (Robertson) or indirectly (Keynes) a consequence of the rise in investment.

In spite of his recognition of the possible importance of what he calls the " liquidity trap for savings " (Mr. Keynes's doctrine about the difficulty of reducing the rate of interest below a certain minimum level), Professor Robertson still retains the belief in a " long period " in which interest is determined by " prospectiveness and productiveness ". " Real peace would do more than anything—more even than real war—not only to raise the curve of marginal productivity of investable funds, but to rotate and stiffen the roof of the liquidity trap into a straight line as vertical and rigid as Mr. Chamberlain's umbrella " (pp. 35–36). Even granted the institutional changes which are no doubt implied in this optimism, I remain sceptical. It can of course be conceded that prolonged experience of low interest rates will reduce the level of interest which people conceive to be normal, and will therefore predispose them to put up with further reductions. In this way the long-term rate of interest may trend downwards over a long period, as probably happened (for instance) between 1880 and 1895. But it surely remains true that the further this process goes, the more difficult it is for it to go further still. When the rate of interest has fallen very low, the merest ripple would be sufficient to recall the liquidity motive to life. It seems too much to expect that there would not be ripples; Professor Robertson himself surely has no right to expect it, since he favours some use of the monetary weapon in the control of fluctuations (p. 126), and he is inclined to believe that the long-term rate of interest has some degree of sensitivity to the cycle (pp. 31–33).[1]

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[1] On this last matter, since Professor Robertson does me the honour to quote my views, I should like to take the opportunity to make a remark. Since *small* changes in long-term rates are much more important than small changes in short-term rates, I think it quite probable that the statistics in my article (*Manchester School*, 1939) were not sufficiently finely meshed to show up such sensitivity to the cycle as the long-term rate possesses. I hope, sooner or

(3) It is pleasant to turn from these matters, where I still feel some necessity for disagreeing with Professor Robertson, to my last head, where I have nothing but whole-hearted agreement and admiration. The doctrine that a trade boom can come to an end in two main ways—on the one hand through rises in costs, ultimately traceable back to the inelasticity of the credit system (not an unnatural inelasticity, but a natural and desirable inelasticity, which fulfils a useful function in preventing the boom from degenerating into true inflation); on the other hand, through the depressing effects of successful capital accumulation, operating in a world where the appearance of innovations is discontinuous—this doctrine, firmly held through good and evil days, is the very centre of Professor Robertson's teaching. It was first foreshadowed in the pages of his *Study of Industrial Fluctuations*, more than twenty-five years ago; at that time it was grounded more in inductive research than in high-flown theory. That it should have been possible, at that time, to distil such a conclusion out of the welter of facts seems to me proof of almost miraculous insight.[1] Nowadays—but not then—it has become easy enough to reach it along the theoretical route; though perhaps even now the majority of economists are too preoccupied with one sort of danger (whichever it is they fancy) to keep the other clearly in mind at the same time. They shape their theories to emphasise sometimes one point, sometimes the other; sometimes they turn their theories inside out so as to pass from one side to the other as circumstances change. But by now it has become abundantly clear that right theory, however expressed, must contemplate the possibility of either kind of dénouement; in any particular case one danger may be greater than the other, but we can never be certain that the balance will not turn the other way on the next occasion. By all means let us dose the short-memoried public with special theories, appropriate to the emergency of the moment, if we can diagnose the emergency correctly; but let us teach our students, who will have to use their economics through the ups and downs of a lifetime, to be Blondinians with Robertson.

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later, to have an opportunity to examine this further. On the other hand, I should like to insist that I do not consider the long-term rate to be determined by past events in a mechanical manner. I still stand by what I wrote in *Value and Capital* (p. 281n.): "The long rate is an average, not of expected short rates, but of forward short rates, which equal expected rates plus a risk-premium. If a rise in current demand increases this risk-premium, it may force up the long-term rate, even when interest-expectations are inelastic." Remembering that the risk-premium is determined *at the margin*, and that the same theory can be stated in terms of short-term or of long-term interest-expectations (*ibid.*, p. 260), I do not believe that there is any *theoretical* difference between my views on this point and those of Professor Robertson. There is at present some difference about the facts, but that is a difference which when opportunity presents we shall probably be able to resolve.

[1] May I take this opportunity to put in a plea for the republication, at the first convenient moment, of Professor Robertson's first great book? There must be very few of the younger generation of economists who possess a copy of it, yet with so consistent a thinker we need all his works if we are to evaluate any of them properly. Could there be any book more suitable for beginning the new series of London reprints which we look forward to when peace returns?

Wartime Control of Prices[1]

By **Frederic Benham**

Mr. Hardy shows graphically how wholesale prices rose from a sagging plain to three sharp peaks during the Napoleonic wars, the Civil War, and the last war. Is this desirable ? No. " The inflation process creates arbitrary and useless changes in the distribution of income . . . The immediate effect upon the cost of the war is found in the slowing down of the war mobilisation programme and the losses involved in the suspension of work as a result of strikes and the absorption of energy in trying to settle controversies and maintain the national unity so necessary to the successful prosecution of the war." After the war, the expectation that the price level will fall back again " greatly increases the difficulties of post-war adjustment " and if it does " the burden of debt becomes correspondingly heavier". How, then, can inflation be prevented ? The first part of the book discusses various possible methods, and makes recommendations. The second part is an excellent brief survey of price control in the United States during the last war : it supports and illustrates the analysis of the first part. The book as a whole is admirable. It is written clearly and to the point ; the economic reasoning is sound and well presented ; administrative and political difficulties are realised and are discussed with commonsense. In what follows we shall suggest a few amplifications or changes of emphasis, but these are not intended as criticisms in any adverse sense.

I

" What are the sinews of war ? The answer is—shells, bombs, torpedoes, guns, tanks, airplanes, battleships, fortifications." " By what means can the government obtain these sinews of war ? . . . In three ways only. The first is to take up the slack in the economic system. . . . The second is to shift production from non-essential peacetime commodities to essential wartime supplies. . . . The third is to import materials and supplies from foreign countries."

These important truths appear simple and obvious enough. But the British Government did not fully realise their implications during the first year and more of the war : at any rate, it did not act upon them with great vigour. Nor was the British public very clear about them : for example, one well-known financial journalist actually applied the term " draconian " to the tax measures of Sir John Simon's *first* war budget. We may reasonably hope that the United States will not repeat our mistake, and that hope is strengthened by the knowledge that there are economists of the quality of Mr. Hardy and his associates, Mr. Director and Mr. Adams, to help in the guidance of American policy and opinion.

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[1] *Wartime Control of Prices*, by Charles O. Hardy. The Brookings Institution, 1940, pp. 216. (Obtainable from Faber and Faber. 5s. net.)

Mr. Hardy points out that most industrial nations are at war, or conquered, or blockaded, so that there is little possibility of obtaining more supplies from foreign countries. We return to this point later. He says that " In 1917 most of the industrial slack had already been taken up ; whereas now the degree of non-utilization of plant and labour power is fairly large." But to-day it is considerably smaller than when these words were written. The main method of war mobilisation must be the second : the diversion of labour and resources into the Forces and into war work.

The Federal Government will have to exercise drastic powers of compulsion in order to secure the rapid and adequate transfer of labour and resources into the required channels. In doing so, it will have to face the difficult task of not weakening unduly incentives to effort and efficiency and of not causing more discontent, notably with inequality of sacrifice, than can be helped. For example, it will probably be necessary to train many men, and women, to make munitions of all kinds. It will be important to make sure that training is not held back by Trade Union objections to " dilution " or by methods of payment which enable potential instructors to earn much more on the bench than as foremen. Again, it will almost certainly be desirable, in order to convince Labour that capitalists are not making profits out of the war, to impose an Excess Profits Tax. In this country, we at first made it 100 per cent. There is no doubt that this hindered efficiency and initiative. Something like 60 per cent., with a further 20 per cent. " blocked ", seems nearer the mark. Personal income taxation, of course, can and should be very high on large incomes. But there is still the possibility that a high *marginal* rate of income tax may deter effort. Mr. Hardy suggests that only ordinary hourly rates should be paid for overtime, and one can see the point of this suggestion. But suppose a worker is subject to a progressive income tax. The net extra money which he gets for overtime may then seem hardly worth while. We wonder if some scheme could not be worked out by which overtime money is made free of tax but has to be placed in a blocked account.

We have been straying a little from the subject of price control. Let us return to it, following Mr. Hardy's exposition.

II

The chapter on fiscal and banking policies shows clearly how and why inflation is likely to take place. " Tax systems are somewhat rigid, and cannot be expanded fast enough to take care of the initial expansion of government activity. Borrowing is necessary and the easiest way to borrow is to put securities directly or indirectly into the banks." At first, " the rising level of money incomes may help to speed up the reabsorption of unemployed resources," but " by the time the ill effects of inflation are apparent, the process has acquired such momentum and administrations have committed themselves to inflationary methods to such an extent that a reversal is not seriously attempted before the end of the war ". Inflation " is a policy which governments drift into, not one which they choose ".

Mr. Hardy so fears the " disastrous " effects of inflation that he advocates " a non-inflationary programme ". Doubtless the government deficit and the public debt will increase, for it is administratively difficult to finance a war entirely out of taxation: there are some advantages in moderate borrowing—out of current income. Doubtless the quantity of money and bank credit will expand. For even if wage-rates are kept stable, the total wages-bill will increase owing to a greater volume of employment (including overtime) and to the movement of workers into the better-paid war occupations; moreover, the splitting-up of families will increase the cash holdings required. " The proper standard . . . if a war is to be fought without inflation is . . . the movement of the price-level." Mr. Hardy suggests, therefore, that the cost-of-living index should be stabilised.

This will be far from easy. If, as we all hope, there is a large transfer of activity into the war industries, this will substantially reduce the current output of consumers' goods. The removal of restrictions on agricultural output and of regulations designed " to make work " is very properly advocated by Mr. Hardy. This will increase output per worker, but even so a full war effort implies not only " a postponement of new housing construction " but also a curtailment in the flow of most consumers' goods. How can the flow of money spent upon them be correspondingly curtailed ?

No doubt America will respond as well as Britain has done to public appeals for voluntary saving. But we agree entirely with Mr. Hardy that it will be best to meet the greater part of the cost of the war out of taxation. And taxes on commodities will raise the cost of living. In Great Britain, the purchase tax is relatively unimportant. Foodstuffs are exempted and, further, some foodstuffs, notably bread, which have considerable weight in the cost-of-living index, are subsidised to keep their prices down. The chief instrument of taxation must be the income-tax. There should be very heavy taxation of the rich and in addition, since the bulk of consumption is by the masses, there should be substantial taxation of wage-earners (deducted, presumably, from their weekly pay).

Nobody doubts that the American people are united in their fight for freedom. Nobody doubts their readiness to make any sacrifices which are really necessary to win that fight. But do they realise that substantial taxation of moderate incomes and considerable cuts in their standards of living are really necessary? Mr. Hardy of course is fully aware of this. But we dare to suggest that in future editions he might render good service, now that America is right in the war, by stating it with emphasis and, possibly, in terms of more detailed proposals for a thoroughly drastic war budget.

III

The advantages of territorial division of labour are still more important in war than in peace. Germany is compelled by the blockade to employ much more labour in growing her own food than she would need to produce manufactures to export in exchange for food. In wartime there is no need to fear that imports will cause unemployment; "what is needed . . . is not to maintain employment but to conserve labour". Hence, Mr. Hardy urges, imports from neutrals should be encouraged "up to the point where production of export goods to pay for the imports would absorb more of our productive effort than the imports would release". This is clearly good sense, "within the limits set by the availability of shipping space", provided that due allowance is made for costs of transport and risk of loss in transit.

The aid given to the war effort by imports from neutrals is greatest if they can be paid for by the sale of assets, such as securities or gold and silver, or "through the flotation of credits in foreign countries". For in that event current labour and resources are not required to produce exports to be sent in exchange. Great Britain paid for a considerable part of her imports, during the first year or so of the war, by selling securities and gold—mainly to the United States. But it is doubtful whether much can be obtained from existing neutrals in these ways. America has most of the world's gold, but it is of little use to her at present. However, she may perhaps sell some silver to South America.

Mr. Hardy suggests that the American price of gold should be reduced, and the exchange-value of the dollar raised, in order to encourage imports from neutrals. This is good sense, as far as it goes, but the trouble is that there are so few neutrals left.

The same applies to his point that protective tariffs should be abolished during the war. The wisdom of this is plain to any economist, but it is most unlikely that any government will act upon it. Perhaps the best we can hope is that a government trading department will not buy from a dearer and perhaps more distant source in preference to a cheaper source simply because the goods are subjected to heavier rates of duty, and would therefore appear in its books as costing slightly more, if they come from the latter and not the former.

Mr. Hardy discusses mainly imports from neutrals. There is plenty of scope, however, for territorial division of labour among the Allies. Perhaps it is not altogether impossible that the United

States and the various portions of the British Empire should all abolish protective tariffs against one another for the duration of the war. There might even be some joint planning for the purpose of making the best use of the total labour force. For example, it is stupid to employ men in producing gold and silver if they can be making some useful contribution to the war effort. Again, there might be a considerable saving of labour if most of the sugar required by the Allies could be obtained from the tropical islands instead of being produced at a high cost in less suitable regions. Obviously, the amount of shipping space available and the danger of sinkings would have to be taken into account. Even so, it is certain that the best allocation of labour and resources would involve the production in America of grain and other foodstuffs to be consumed in Great Britain. This leads to our next point.

IV

During the last war there was no general system of rationing for foodstuffs in America. She normally produces considerable export surpluses of many foodstuffs and at present some stocks have probably accumulated owing to lack of shipping space. Hence it may be thought that the limited price controls of the last war will suffice. But the situation may well change as large numbers of workers in agriculture and the food industries move into the Forces or into war work, and as—with more shipping becoming available—larger quantities are exported. Granted that it is desirable to stabilise the cost of living, it might be prudent from the outset to fix the prices of most necessities, including foodstuffs, and to accompany this by rationing, although for some commodities the rations would doubtless be so large at first as to impose no hardship.

On the prices paid for government purchases Mr. Hardy as usual has some wise remarks to make. The payment of costs-plus-a-percentage on contracts " developed grave abuses " during the last war. " Obviously this is a bad device because it penalises economy and efficiency. Better is cost plus a fixed sum, or cost plus an amount which rises as cost falls." The cost-plus system should be restricted to " pilot contracts " for preliminary orders where the services are of so new a type that it is difficult to estimate costs in advance. The only suggestion we can add is that it is very important to have some men with a good general knowledge of contracting and of current contracting costs inside the spending departments. Otherwise some remarkable estimates may get accepted.

Again, it is clear that " the War and Navy Departments should not be given blank checks with which to compete against each other on a price basis for limited supplies of materials ". Government purchases should be co-ordinated. But this is easier said than done. A single Price-Control Authority should be and may be set up, but possibly the President himself may have to decide major questions of priority between departments.

How should the government decide what prices to pay for essential war commodities which happen to be scarce? For example, in September, 1918, up to 60 per cent. of the basic pig-iron was produced at costs ranging from 18 to 22 dollars per ton. The next 30 per cent. was produced at costs ranging from 22 to 27½ dollars and the last 10 per cent. cost up to 44 dollars. The government insisted on the " bulk-line " policy of paying a single price for a standardised commodity, and in fact paid 32 dollars per ton. This system clearly involves paying more than necessary in order to cover the costs of the minority of high-cost producers. Mr. Hardy proposes that the single-price notion should be dropped and that prices should be fixed for each firm " on the analogy of public utility rate fixing. In that field the accepted principle is that the price fixed by public authority shall be high enough to permit a company with prudent management to make a fair return on investment ". If the government will not take this sensible course of dropping the single-price notion, then it may be possible as a makeshift solution for the government to buy the raw material and contract for " service in fabricating " instead of buying the finished product.

The plan to establish a " price ceiling " for all prices is rejected. " Since it does not prevent the operation of a primary inflationary force, nearly all prices may in due course be expected to go through the ceiling if sole reliance is placed upon it." Further, " it does not sufficiently recognise the need for a wartime price structure that is appropriate to war conditions; it tends merely to freeze the peacetime structure ". Finally, " it would create an enormous and probably impossible administrative task ".

We feel doubtful, however, about the statement that " if inflation is to be prevented it is desirable that interest rates should be permitted to rise ". If non-essential investment is prohibited, and there is stiff taxation of profits, and suitable propaganda, it should be possible for the government to borrow, without inflation, at a low rate of interest. Further, we feel that the absence of a firm public policy concerning wage-*rates* may disturb the Price-Control Authority and upset its plans.

This is a fine book. As the investigation was undertaken at the request of the United States War Department there is some chance that the Federal Government will take some notice of it. The more influence it has, the better.

War Economics

A BIBLIOGRAPHICAL APPROACH

By E. M. Rosenbaum

> " It is impossible to ascertain how much of the policy of any state has a reference to war, or to national safety. ' Our legislator,' says the Cretan in Plato, ' thought that nations were by nature in a state of hostility : He took his measures accordingly ; and observing that all the possessions of the vanquished pertain to the victor, he held it ridiculous to propose any benefit to his country, before he had provided that it should not be conquered.' "
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> Adam Ferguson, *An Essay on the History of Civil Society*, Edinb. 1767, Part III, Sect. V (Cf. Plato, *Laws*, ed. Loeb, vol. I, p. 7, with a more elaborate translation).

By war economics we mean here not economic warfare, but the preparation and the utilisation of the economic resources of a country for the purposes of war. Economic warfare, including blockade, pre-emption and many other techniques, is only a part of this general task.

Until the first world war English and American literature possessed no theory of war economics expressly formulated as a " political economy of war ". Professor Pigou's *Political Economy of War*, published first in London in 1921 and republished in a revised form in 1940, is according to the express intention of the author more an " anatomy and physiology " of the economic system in war than an attempt to add a full-sized theory of war economics as such to an analysis of the working of economic processes under more normal conditions. The book was originally written for the economist and certainly not as a mental preparation for another war, although its serene wisdom may prove very helpful to the politician and administrative official now.

Although priority in the development of a theory of war economics must be ascribed to continental writers, it has nevertheless, as is the case with so many continental institutions, English roots in what Sir William Petty was probably the first to call " Political Arithmetick ". And this in turn has its forerunners in the early statistical surveys done by wary citizens of the states of mediæval Italy. Giovanni Botero in his *Relazioni Universali* (1591 and later) sizes up in figures the worldly powers of emperors and kings, and his work was followed by many others combining empirical statistical methods with political reasoning.[1]

All these early attempts at statistical analysis and interpretation aimed primarily at ascertaining, if not the war potential, at least the potential of political power of the state in question. As A. Oncken aptly remarks, the important point for mercantilist writers was the calculation or estimation of the political balance and of the balance of trade, and in the early days of the modern state the balance of trade was examined with a view to discovering whether the power of the state was growing or declining.[2] Power was the main consideration.[3]

Of Sir William Petty's "Political Arithmetick" the editor of his works remarks: "The moral of the 'Political Arithmetick', implicit but clearly implied, is that Charles II may, if he will, make himself independent of the bribes of Louis XIV. 'The doctrines of this essay offended France.'"[4]

Like Botero, a series of writers followed in Petty's train with investigations either relating generally to the economic resources of the country or making considerations of war economy their focal point. We may mention here *An Essay on the Ways and Means of Supplying the War*, published by Charles Davenant in 1695 (Works, London 1771, vol. I, pp. 1–82), and *An Estimate of the Comparative Strength of Great Britain; and of the Losses of her Trade from Every War since the Revolution*, by George Chalmers.[5] The interested part of the public entertained no doubt that such investigations related to war economy. When about 1753, under the apprehension that the population was decreasing, the House of Commons voted for an official enumeration of the people, this scheme was rejected by the House of Lords. "The main objection was that a census would show the increasing inability of the country to support an adequate army."[6] One publication of this type deserves to be quoted with its full title, the more so since it is one of the earliest to apply the graphical method to statistics of commerce, finance, territory and population; it is William Playfair's *Statistical Breviary: Shewing, on a Principle Entirely New, the Resources of Every State and Kingdom*

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[1] Cf. Jacob Burckhardt, *The Civilization of the Renaissance in Italy*, London 1929, p. 90 ff. Venice as the home of statistics, and P. A. Meitzen, *History, Theory and Technique of Statistics*, Philadelphia 1891, p. 20 *et seq*.

[2] August Oncken, *Geschichte der Nationaloekonomie*, pt. I, Leipzig 1902, p. 153.

[3] "The mercantile theory was essentially political." James Bonar, *Philosophy and Political Economy*, London 1893, p. 5; its interest in the movements of precious metals and its "exaggerated care for the mere numbers of peoples" was connected "with the military view in which the Mercantile System seems to have originated". *Loc. cit.* p. 131 *et seq*.

[4] *The Economic Writings of Sir William Petty*. Edited by Charles Henry Hull. Cambridge 1899, vol. I, p. lxi. The preface by Petty's son for the first edition of 1690 clearly states the primarily political aims of the book which had . . . "things of Government . . . the Glory of the Prince and greatness of the People . . . brought into a sort of Demonstration". *Op. cit.* vol. I, p. 239 *et seq*.

[5] First published in 1782, a new edition, corrected and continued, London 1802, last edition Edinburgh 1812.

[6] G. R. Porter, *The Progress of the Nation*. New edition by F. W. Hirst, London 1912, p. 1.

in Europe; Illustrated with Stained Copper-plate Charts Representing the Physical Powers of Each Distinct Nation with Ease and Perspicuity (London 1801). The data include, e.g., for each country the land and sea forces in time of peace and of war.

A late derivative of these balance sheets of political power is the work of P. Colquhoun: *A Treatise on the Wealth, Power and Resources of the British Empire, in Every Quarter of the World, Including the East Indies, etc.*, London 1815. But whilst Chalmers had carefully stated (see Preface of 1802 edition, p. 1), " that the summit can only be gained, by substituting accurate research, for delusive speculation, and by rejecting zeal of paradox, for moderation of opinion ", Colquhoun was too ambitious and extended his conclusions much further than the quality of available statistics would allow.[1] But again the tendency is made quite clear in a sentence like this: The statistical tables . . . " embrace every thing that is necessary to convey to the mind the various combinations upon which the *power* and *resources* of the British Empire are founded . . . " (Preface, p. viii; author's italics).

Whilst Political Arithmetic developed in this way until its tasks were taken over by the statistical departments of the modern state—which, however, did not prevent the survival of a kind of statistical folklore of the older type—war economy as such finds no place in the rising theory of political economy, and war is relegated to the category of disturbances of the economic process. But there is at least one notable exception, and this is Adam Smith's *Wealth of Nations*, Book V, Chapter I, Part I: " Of the Expense of Defence " (Cannan's ed., vol. II, pp. 186–202). This section contains in a nutshell all the considerations relating to war finance, armaments potential and allocation of man-power, and above all a discussion of the differences between agricultural and industrial countries in regard to war, to which modern literature inquisitively reverted towards the end of the 19th century, when a new wave of agricultural population was flocking into the towns. This treatment of the economic aspects of war has not escaped the attention of German literature, which formerly tended to see only the liberal-commercial element in Adam Smith.[2] It is true that Smith, in contrast to many mercantilist writers, no longer regards war as a profitable profession, but as a necessary act of defence.

At this point we can leave English development—for nearly 150 years—and turn to continental, and that means essentially German and Austrian, literature. For this we may take as a motto the words of C. C. W. Friderici, who wrote some sixty years before Clausewitz towards the end of the third Silesian war: " War is waged in order to achieve the ends of the state. The state at war (*der Kriegsstaat*) is so closely connected with the civil state that they cannot be separated."[1] This point of view, that war does not stand in contrast to peace, but only constitutes a difference in degree, incidentally explains why the political element has always predominated in Germany even in economic theory, which has never quite forgotten its mercantilist origin.

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[1] Cf. McCulloch's criticism in *The Literature of Political Economy*, London 1845 (London School of Economics reprint 1938), p. 218.

[2] P. F. Schroeder, " Wehrwirtschaftliches in Adam Smith's Werk ueber den Volkswohlstand," *Schmoller's Jahrbuch* Bd. 63, 1939, Teil 3, pp. 657–672.

Besides numerous not strictly economic works, on armament and army provisioning and clothing, surveyed by Werner Sombart in his *Krieg und Kapitalismus* (Muenchen and Leipzig 1913, Literatur und Quellen, pp. 211–232), special mention should be made of the *Oekonomisch-technologische Enzyklopaedie* by Johann Georg Kruenitz (Berlin 1773–1855). This devotes no less than four volumes (vols. 50–53, 1790 ff.) to the varied aspects of war and examines the economic consequences of war, as well as the economic conditions for effectively waging war, under such heads as "Kriegs-Wirtschafts-Kunst" and "Kriegs-Haushaltungs-Kunst". The damage to agriculture caused by shortage of hands and untilled soil receives sympathetic consideration, but a real analysis of war potential is also attempted. Volume 50 (p. 745 ff.) contains comparative tables of the area, population, revenue, military strength and the proportion of soldiers (to population and to the number of men of military age), for the European Great Powers.[2]

Even on the Continent there was a gap between such statistical-descriptive research and real theoretical analysis. But there the titles of economic books begin, much earlier than in England or even than in the United States, to have a flavour of war economics and a smell of powder.

We mention first the work of the German-Russian Count Georg von Cancrin (1774-1845): *Ueber die Militaeroekonomie im Frieden und im Kriege, und ueber ihr Wechselverhaeltnis zu den Operationen*, 3 vols., St. Petersburg, 1820–23. As General Quartermaster of the Russian armies from 1812 onwards (later, 1823–1844, Russian minister of finance) he had ample opportunity to study his subject and his nickname, "the Colbert of Russia", gives evidence of the mercantilistic roots of a mind bent on war economics. It is worth quoting in full what Roscher says about his attitude: "Wenn so viele Nachfolger Adam Smith's unter der stillschweigenden Voraussetzung theoretisiert haben, als waeren alle Menschen blosz richtig rechnende Wirthe, alle Staaten blosz Friedensanstalten: so scheint Cancrin zu der Voraussetzung, wo nicht ewigen Krieges, doch ewiger Kriegsbereitschaft, hinzuneigen." Cancrin, says Roscher, although not believing in perpetual war, seems inclined to believe in perpetual preparedness for war. We shall have reason to remember this wise remark when dealing with the more recent German literature.[1]

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[1] *Gruendliche Einleitung in die Kriegswissenschaft*, Breslau and Thorn, 1763, quoted by Max Jaehns, *Geschichte der Kriegswissenschaften, vornehmlich in Deutschland*, Muenchen 1889–91, Bd. III, paragraph 80, p. 1909.

[2] Kruenitz made probably use of the four volumes on "Art militaire" in Diderot's *Encyclopédie méthodique*, Paris 1780 ff.; but present library conditions prevented further investigation of this question.

Around the middle of the 19th century, as can be well understood, a number of monographs were published on the Continent on the military value of railways. In contrast to Britain strategic considerations naturally played an important part and often predominated over economic in the construction and routes of railways.[2]

The few systematic treatises on the relations between the economic system, war and defence, published in the second half of the 19th century, were written by Austrians and arose partly from their official connection with military education. Moreover, Austria was characterised by a particularly strong administrative tradition in which the persistence of mercantilist ideas of welfare and power politics is evident.[3]

At the beginning of the 20th century the Austrian social economist Otto Neurath proceeded from these traditions and blended them with an element of original thinking in the borderland of economics and sociology. In an essay published in 1913 (*Weltwirtschaftliches Archiv*, Kiel/Jena) he not only demanded the systematic development of a special branch of economics, but also suggested for it the name *Kriegswirtschaftslehre*, which was immediately adopted. He saw in the coming world war (of 1914), which he anticipated and which he expected to last for a very long period, a lever for comprehensive social revolutions, and stressed especially the element of direct administrative and socialist-communist control which would characterise every future war economy. He made a special point of the inadequacy of older ideas on the conduct of war which were still based too exclusively on financial considerations.[4] A similar comprehensive attempt to analyse the social and economic character of modern war, independently of the German-Austrian line of thought, is the work of the French officer B. Serrigny, *Les conséquences économiques et sociales d'une prochaine guerre*, Paris 1909; it is an expansion of an essay which he published anonymously in 1906: *La guerre et le mouvement économique.*[1] The author's attention remained directed towards these questions through a lifetime of military service. In one of his many contributions to the *Revue des deux Mondes* there is an early, if not the first, mention of a term the coining of which is usually ascribed to German thought. Describing the industrial efforts made by all countries after the first phases of the war of 1914–1918 to cope with the miscalculated demand for munition and technical outfit, he goes on: "Peu à peu la notion de la 'guerre totale' fit place à la vieille formule d'antan et c'est sous cette nouvelle forme que s'est terminée la lutte."[2]

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[1] Wilhelm Roscher, *Geschichte der Nationaloekonomik in Deutschland*, Muenchen 1874, p. 814.

[2] Cf. subject heading "Eisenbahnkrieg" in Pohler, *Bibliotheca historico militaris*, Bd. III, Cassel 1895, pp. 614–616.—A book with the promising title: *ERIS oder die Kriegfuehrung in den gigantischen Formen der Zukunft. Ein Fragment*, Nuernberg 1838, was not to be found in any library accessible to the writer.

[3] Lorenz von Stein, *Die Lehre vom Heerwesen. Als Theil der Staatswissenschaften*, Stuttgart 1872, pp. 274.

Franz Xaver Neumann, *Volkswirtschaftslehre mit besonderer Anwendung auf Heerwesen und Militaerverwaltung*, Wien 1873, 2 vols.

Gustav Ratzenhofer, *Die Staatswehr: wissenschaftliche Untersuchung der oeffentlichen Wehrangelegenheiten*, Stuttgart 1881, pp. xvi and 332.

[4] Otto Neurath, *Durch die Kriegswirtschaft zur Naturalwirtschaft*, Muenchen 1919, pp. 231. This is a collection of his various contributions to war economics from 1909 to 1918. Another article which has not been reprinted should also be consulted: "Probleme der Kriegswirtschaftslehre" in *Zeitschrift fuer die gesamte Staatswissenschaft*, vol. 69, Tuebingen 1913, pp. 438–501. It is interesting to note that neither Fauvel (cf. p. 77) nor Mendershausen (cf. p. 79) mention this author whose unmilitaristic idealism and economic insight should secure for him a first place among the theoreticians of war economics. Another book, by an Austrian officer, and pervaded with a similar feeling of the coming crisis and with melancholy plodding the way which leads from Schopenhauer to Spengler should be mentioned here: Theobald Ritter von Mossig, *Die Staatenentwicklung als Produkt von Ueberflusz und Mangel*, Wien 1912, pp. 417. The final part is important for our subject.

How this line of development continued during the years of the first world war is outlined in the monumental historical work of the Carnegie Endowment for International Peace, to which it is only possible to make a general reference here.[3]

After the end of the war in 1918 in the field of state administration and in the deeper theoretical examination of these questions the ground was prepared for the total war of the future. As a characterisation of the political background a few dates for the factual development outside Great Britain may first be given.

Japan was the first country to begin with a "Law on the mobilisation of industry in time of war", which was followed in 1919 by the establishment of a department for war supplies. This was amalgamated in 1921 with the Statistical Office to form an "Institute for National Construction", which was reorganised in 1927 as the "Institute of National Resources".[4]

Likewise the new Polish state began immediately after the war to evolve legislation for economic defence with the two laws of the 11th April and 25th July, 1919, on military service, both as regards property and men. These laws were continually revised, supplemented and extended. The most interesting addition was the law of the 22nd March, 1928, on subsidies for industrial and transport undertakings which aimed at concentrating industry important for war purposes in a certain part of the country, protected by the fortresses of Deblin, Przemyśl, Tarnów and Krasnystaw. This law should be read in connexion with the law of December 23rd, 1927, banning all foreigners from owning real estate or conducting business of any kind in a zone of 30 km. width round the country's frontier. These measures clearly reflect political apprehensions.

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[1] In this connection a note of grateful remembrance should be devoted to the encyclopedic work of the Warsaw banker Jean de Bloch: *La Guerre . Traduction de l'ouvrage russe La Guerre Future aux points de vue technique, économique et politique*, six volumes, Paris 1898–1899. It certainly helped in its Russian original to prepare the atmosphere for the first Hague Peace Conference (May to July, 1899) and in its translation to create a more realistic grasp of the order of magnitude both of the military and economic side of future wars. But in spite of its often very penetrating analyses and startling predictions, it did not really advance the theoretical problems of war economics. See also the abridged one volume edition by W. T. Stead, London 1900, with a prefatory conversation between the author and the translator which contains some good remarks on the necessary function of the enlightened dilettante.

[2] Général Serrigny, "L'organisation de la nation pour le temps de guerre," *R.d.d.M.*, Dec. 1, 1923, p. 586.

[3] A great number of the 155 or so monographs comprising the "Economic and social history of the World War" far surpass mere ordered description and contain valuable contributions to the economic theory of conditions of peace and war. It might be invidious to give names; but many are worth re-reading, not as ready-made blueprints for the present war, but as an organon of "thinking to some purpose".

[4] For the more recent development see E. B. Schumpeter (editor), *The Industrialization of Japan and Manchukuo*, 1920–1940. *Population, Raw Materials and Industry.* New York, 1940, pp. xxviii and 944. ("The transition to a wartime economy," pp. 789 *et seq.*)

Italy adopted a law on the mobilisation of the nation for war on the 8th July, 1925. In December, 1927, Paul-Boncour introduced in the French Chamber a " Projet de l'organisation générale de la nation pour la guerre ", the discussion of which dragged on till 1935, but which was never formally passed. Most of its contents were put into force, however, by orders in council. Sweden set up a " Committee for Economic Defence Preparation " whose terms of reference were stated in a law of May 11th, 1928. The results of the investigations were published in 1935 (*Foersvarskommissionens Betaenkande, Referat och Reflexioner*). Finland followed in 1930 with the erection of an " Economic Council for Defence Preparedness ", and Holland published in 1935 a special report by a committee of the army on questions of economic defence, which was followed up by a number of appropriate laws. Czechoslovakia handled this problem especially thoroughly. The basic law of the 13th May, 1936, soon gained fame as the most comprehensive legislation of its kind.[1]

The United States of America showed great energy in utilising the lessons they had learnt from the war. The " National Defense Act " of July, 1920 (*Statutes at Large of the U.S.A.*, 1919–1921, vol. 41, Part I, pp. 759 *seq.*), created by its Section 5a the position of " Assistant Secretary for War " who became responsible for industrial mobilisation, and whose Annual Reports contain much valuable material on subsequent developments.[2] 1924 saw the foundation of the Army Industrial College to train officers for the various tasks of industrial mobilisation. During the years 1927 to 1930 the Industrial Mobilisation Plan was worked out. It was first published in 1931 by the Secretary of War and by the Secretary of the Navy. It was revised in 1933 and 1936, and in 1939 again a new edition was published. This one was formulated more concisely and with a franker admission of its real object ; it equipped the Administration with greater powers than the earlier plans. The " War Policies Commission " of Congress has been working since June, 1930, and has devoted a great deal of attention to questions of future "war-economic" policy, especially under the slogan: "Taking the profits out of war."[1]

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[1] See Emil Ehrlich, *Gesetz ueber die Verteidigung des Staates vom* 13. *Mai 1936*. Reichenberg 1936, pp. xvi and 482 (" Stiepels Gesetzsammlung des tschechoslowakischen Staates," Folge 78).

[2] See more particularly *Report of the Secretary of War* 1923, pp. 1–25, with a stimulating discussion on the economics of national defence expenditure which tries to give both sides of the balance sheet. See also : *Annual Reports of the National Munitions Control Board*, first published for the year ending November 30, 1936.

Developments in Russia and in Germany had aspects of their own. Even the official presentation of the First Five Year Plan by G. T. Grinko in 1930 did not conceal the fact that the emphasis on heavy industry was in the service of war economy and that one could indeed describe the whole plan as a gigantic military economic enterprise. The strategic purpose of the development of a heavy iron industry in the Urals was brought into prominence in all publications.[2]

The industrial rearmament of Germany began immediately after the end of the war of 1914–18, but could only be carried through in a preparatory and limited fashion so long as the disarmament clauses of the Treaty of Versailles could not be openly transgressed. With the announcement of the Four Years Plan, through the decree of the 23rd October, 1936, the position changed fundamentally. This Four Years Plan differs from all similar programmes of construction or reconstruction in that it has never existed. The name, which like so much in the Nazi propaganda technique imitates Russian propaganda, simply conceals a blank cheque for Goering to empower him to make the German economic system ready for war within four years. The decree of the 13th July, 1937, created the necessary administrative machinery, but made no attempt to screen the naked order of mobilisation with any kind of constructive paraphernalia. Already in the second number of Goering's own periodical *Der Vierjahresplan, Zeitschrift fuer nationalsozialistische Wirtschaftspolitik*, Colonel Thomas, chief of the economic staff in the High Command of the Army, argues that German defence economy is the real foundation of a healthy national economy. The Four Years Plan and defence economy are inseparable: "Beide dienen dem hoechsten Ziel, der deutschen

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[1] For a survey of the preparatory work done by legislation and congressional enquiries see: H. J. Tobin and P. C. Bidwell, *Mobilizing Civilian America*, New York, 1940, pp. xi and 276. An appendix gives the final text of the Industrial Mobilization Plan, revision 1939. The bibliography gives on pp. 262–267 a most helpful list of United States Government Publications to which the following ones may be added now: *Investigation of Concentration of Economic Power* (Temporary National Economic Committee), Hearings, Part 21, *War and Prices*; Monographs, no. 19, *Government Purchasing—An Economic Commentary*; no. 20, *Taxation, Recovery and Defense*; no. 40, *Regulation of Economic Activities in Foreign Countries*. For the profit discussion see apart from the official hearings Bernard M. Baruch, *Taking the Profits Out of War; A Programme for Industrial Mobilisation*. Privately printed (New York, 1937), pp. 150. The author is the well-known President of the War Industries Board in the first world war.

J. H. Bogman, *Economic Planning and National Defense*, Washington 1933, specially written for the use of the students of the Army Industrial College, gives a valuable official commentary to the Mobilization Plan, and contains (on p. 26 *seq.*) a short and well documented sketch of the preceding American and foreign literature.

[2] See as the latest report: A. Baykow, "Remarks on the experience in the organisation of 'war economy' in the U.S.S.R.," *Economic Journal*, Dec. 1941, pp. 422–438. An excellent monograph on the Urals, mainly based on Russian sources, is: M. Rosenberg, *Die Schwerindustrie in Russisch-Asien. Eine Studie ueber das Ural-Kusnezker-Kombinat.* Berlin 1938, pp. 260, bibliography pp. 252–260.

Freiheit" (*Wehrwirtschaft und Vierjahresplan*, February issue, 1937, p. 92 *et seq.*). As from May, 1937, each monthly instalment has a special page of miscellaneous notes (*Wehrwirtschaftliche Fragen*), and in January, 1939, the same Thomas, now Major-general, contributes a fundamental discussion of the relations between economic planning and war economics.

Another organ for the discussion and propaganda of war economics was the *Deutsche Volkswirt.* A constant contributor on this subject was Major Kurt Hesse, who, with the support of the Wehrministerium, had become a very active publicist. His article "Grundsaetzliches zur Wehrwirtschaft" stresses the point that defence-, peace- and war-economy are only different stages of one and the same thing.[1]

As a publication devoted exclusively to the theory of war economy Hesse published as general editor a series of monographs: *Schriften zur kriegswirtschaftlichen Forschung und Schulung*, as well as the *Kriegswirtschaftliche Jahresberichte*, Hamburg 1936, 1937 and 1938, the most comprehensive international collection of material on defence economy. Special mention should be made of the fact that the preface of the 1938 edition contained the remarkable statement that the task was now so nearly completed that publication could be interrupted for several years: the next issue was planned for 1942.[2]

The geographical factors in defence economy, in the subtle disguise of applied political geography, were the special preoccupation of the *Zeitschrift fuer Geopolitik*, edited by the retired major-general Professor Karl Haushofer,[3] whilst these and similar questions were frequently discussed with more military objectivity in the *Militaerische Rundschau*, published by the German General Staff.[4]

Only the *Revue des deux Mondes* had a comparable importance in

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[1] *Deutscher Volkswirt*, March 1936, pp. 1211–13. The same issue contains the first instalment of the *Wehrwirtschaftliche Umschau* which is henceforth a feature of every weekly edition. The literary prehistory of war economics is given in two interesting contributions: E. Meier, *Die Nationaloekonomie in Deutschland und der Weltkrieg*, Aug. 1937, pp. 2205–08, and H. Hellmer, *Wehrwirtschaft als Gegenstand der Wissenschaft vor 1933*, Nov. 1938, pp. 246–248 and pp. 293–296.

[2] A list of 23 titles of the *Schriften zur kriegswissenschaftlichen Forschung* is given on the endpapers of the Jahresberichte, 1938.

[3] The following articles are specimens of topical interest and indications of German spheres of political expansion: G. Gothein, "Die wirtschaftliche Versorgung Italiens im Kriegsfalle", (1926, Heft 5, pp. 333–337); Hermann Lufft, "Schwedens Wehrwirtschaft als raumpolitisches Problem" (1938, Heft 10, pp. 793–810); H. Wilsdorf, "Wirtschaftsplanung und Aussenhandelslenkung im autoritaeren Rumaenien" (1938, Heft 7, pp. 585–591); Nis Petersen, "Neues ueber die maritime und militaerstrategische Bedeutung der Ostsee" (1939, Heft 10, pp. 751–754).

To the same mental atmosphere belong some of the books written by contributors of the Zeitschrift, e.g.: *Wehrpolitik. Eine Einfuehrung und Begriffsbestimmung*, Leipzig 1939, by Dr. Oskar Ritter von Niedermayer, Direktor des Wehrpolitischen Instituts der Universitaet Berlin, and a book carrying the philosophy of space to ultima Thule: *Der Raum als Waffe. Versuch einer raumpolitischen Strategie*, by Rupert von Schumacher, Berlin 1935, with bibliography, pp. 158–160.

[4] We may mention as an example: "Raumordnung als wehrwirtschaftliche Aufgabe", by A. Klein, August 1936, pp. 644–653.

A periodical of similar importance is the *Wehrtechnische Monatshefte*, of which, however, no file was in any library accessible to the writer.

French literature. With the eager attention characteristic of a threatened neighbour it pointed to the dangerous development in Germany from about 1922 onwards and constantly exhorted Frenchmen to take the necessary countermeasures. In its combination of deadly seriousness and clear insight the contributions to this journal plainly demonstrate the contrast between the political atmosphere of the Continent and of the British Isles.[1] The *Revue des Questions de Défense Nationale*, a transformation of the former *Revue militaire générale*, was started in Paris in May, 1939, as a monthly journal devoted entirely to questions of defence. In the issues published before the outbreak of the war problems of finance and raw materials received special attention.[2]

In the United States questions of industrial mobilisation were discussed mainly in the periodical *Army Ordnance*, of which no complete sets seem to be available in any generally-accessible library in this country.[3] Articles of more popular appeal were published time and again in the *Nation's Business*, published by the Chamber of Commerce of the United States, and some very pertinent contributions to the problems involved appeared in the sumptuous monthly, *Fortune*. On the other hand, the important economic reviews, almost exactly as in Great Britain, scarcely took any part in the treatment of such questions up to 1939, a sign that they were still not regarded as urgent by the general run of economists.

Reviewing the nature and extent of the writings on the subject, one is compelled to state that the modern theory of war economics is essentially a German creation, with a warning echo in France and a side line in Italy, where investigations of the theory and practice of an "economia armata" were begun after the second (but not last) Abyssinian war and sanctions.[4]

It would, however, be incorrect to conclude that English writings have paid no attention to the newer problems of war economics. The book titles in the bibliographical part will show that the problems were in many cases correctly appreciated. But the discussion of them was bound up with the more comprehensive questions of imperial strategy, military geography, and the economic co-ordination of the Commonwealth, and never reached the hysterical seriousness of German *Wehrpropaganda*. Only from 1938 onwards did the discussion become more lively, especially in connection with the "Essential Commodities Reserve Act" of July 29th, 1938. With his usual insight into the fateful march of time, J. M. Keynes, who had followed the quasi-political character of the marketing of certain raw materials since 1926 at least, now drew his own conclusions on the problem of supply; his proposals kept the discussion going and helped to shape administrative measures, as they had done before.[1]

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[1] One of the most remarkable specimens of Latin clairvoyance was published anonymously just before the ourbreak of the war: "Une forme nouvelle des conflits internationaux. La paix guerre", which also discusses problems of war economics (August 1939, pp. 766–789).

[2] Jean Tannéry, "Finance et défense nationale" (May 1939, pp. 91–123); F. Blondel, "Le ravitaillement de la France en matières premières minérales" (July 1939, pp. 429–441); Général Boucherie, "La forêt française au secours de la défense nationale" (August 1939, pp. 521–542).

[3] An incomplete set is to be found in the library of the Patent Office.

[4] In Russia, Poland and Czechoslovakia the legislative measures were prepared and accompanied by scientific investigations, of which, however, we have only seen the titles in bibliographies. A work which is often quoted extensively in German and French treatises and seems to be a very valuable contribution to our subject is: St. Pluzanski, *Zasadi Mobilizacji przemyslu na potrezeby obrony Państwa*, Varsaw 1934 (Principles of the mobilisation of the industry for the needs of state defence).

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In May, 1939, the compiler began to draw up an annotated list of treatises and articles in periodicals to form a comprehensive bibliography of war economics.[2] Owing to the outbreak of war, however, the work had to be interrupted twice for reasons beyond his control. When it was resumed the evacuation of the serial works and later also part of the treatises in the British Library of Political and Economic Science, the main source for this enquiry, had begun, and other libraries, although of secondary importance for our purpose, became less accessible. In addition, conditions in London in the autumn and winter, 1940–41, were not too propitious for this type of research. Nevertheless, some of the collected material has already proved to be useful in answering bibliographical enquiries from various quarters. But the original scheme had to be cut down to one less ambitious.

The following list of titles, mainly covering the period between the First and the opening phase of the Second World War, does not aim at any kind of completeness. It is a selection to indicate the general lines of research in problems of war economics.[3] Little stress is laid on financial questions ; a literature of long standing has already dealt with them, and besides the conception of total war emphasises the importance of other economic factors.[4] But even this is nothing really new : if we draw a cross-section from Petty down to the latest additions in this field (e.g. Mendershausen) we find more or less the same subject headings: man-power for the fighting forces and the various branches of national industry, structure of the economic system, distribution of the national income between the various classes of the community, raw materials in the immediate possession of the nation or available by foreign trade, state of the public credit, public debts and forms of taxation; and it all ultimately boils down to one and the same result: "that the important thing is how much can be produced in a given time."[1]

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[1] "The policy of Government Storage of Food Stuffs and Raw Materials." A paper read before Section F of the British Association, Cambridge, August 1938 (*Economic Journal*, September 1938, pp. 449–460).

Of Government reports there are some specifically connected with the problems of war economics : *Report of the Royal Commission on the Private Manufacture and Trading in Arms*, October 1936 (Cmd. 5292), especially Chap. IX : Taking the Profit out of War (pp. 44–46), and the *Statement relating to this report*, May, 1937 (Cmd. 5451) ; Board of Trade, *Report of the Food (Defence Plans) Department* for the year ended 31st December, 1937 (no more published) ; and lastly the *Report of the Royal Commission on the Distribution of the Industrial Population*, January 1940 (Cmd. 6153), of which Chap. VII, p. 98 *et seq.*, discusses the strategical implications.

[2] The compiler wishes to express his gratitude to the trustees of the Rockefeller Foundation for a grant for this purpose, and also to Professor F. A. von Hayek and Dr. W. C. Dickinson for valuable help and suggestions.

[3] Why any such list must contain a high proportion of German titles has been explained in the introductory remarks. No titles given in this introduction will be repeated in the bibliography.

[4] Chalmers discusses the claims which various factors have to be regarded as the most important for the estimation of the war strength of nations and the various ideas of 'theorists' about it (*An Estimate*, 1802, p. 60).

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[1] Cannan's note to the first line of Adam Smith's *Wealth of Nations.*

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Book Reviews

The Wool Trade in English Medieval History. By EILEEN POWER. Oxford University Press. 1941. viii + 128 pp. 7s. 6d. net.

Nobody who heard the late Eileen Power deliver the Ford Lectures at Oxford in Hilary Term, 1939, can open this little book without emotion. The large South School was full, the attention of her hearers unbroken, the applause, so rarely offered at our academic exercises, spontaneous and generous. The lectures were models of their kind, carefully prepared yet given with ease and freedom, truly proportioned yet never stilted, admirable in every way. Dr. Power enjoyed herself immensely and her pleasure was infectious. In those six happy hours she spoke of things which she *knew* and could see. Years of thought and labour lay behind those lectures; time had given reflection the gift of simple and lucid expression, labour had cleared the mind of all pedantic lumber. The lecturer had been caught and carried along in a powerful stream of continental learning, but had learned to manage her craft with the ease of a master.

Professor Postan has published these lectures as they were delivered. He proposes in due course to issue a second edition, with notes, appendixes and critical apparatus which will show how firm and strong the hidden foundations are. The second edition will doubtless be a boon to students of medieval social history; but the influence of the simple text given in this first edition will be more widespread and possibly more important. For the real value of this little book lies in its almost casual exposition of the way in which the special and the general in history explain each other, and life can be given to the technical. No attempt is made, for none was intended, to offer a new contribution to the economic interpretation of history. This is just history.

"The economic, and a good deal of the political, history of Europe has been profoundly influenced by the fact that the earliest homes of the cloth manufacturers were not identical with the most important centres of wool production" (p. 8). "This little country in the thirteenth century faced the same problems which England faced in the nineteenth century and gave the same answer" (p. 10). These sentences give the gist of the matter and indicate how the story of the wool trade in the middle ages is—or can be—the first chapter in the story of what a later Ford lecturer has called "the ocean in English history". Dr. Power and Mr. J. A. Williamson have been thinking along the same lines. Indeed it might be suggested that, just as in course of time the tapping of monetary reserves in India set free capital derived from the eastern trade, and no longer required in India, to finance the growing industrial life of England, so, four centuries earlier, the fluidity of finance, mainly caused by the export of wool, and the development of methods of business, promoted the manufacture of cloth in England and gave form and purpose to the English middle class. At any rate the medieval development, with all its overlapping and setbacks, from organised export to less organised industrialism, is the main theme of Dr. Power's book. In the introductory lecture and the second lecture (" Sheep Farming and Wool Production ") she led up to the study of organisation of the wool trade by showing how widespread the " fluidity " was. " A pastoral economy was one in which labour services played a small part compared with money rents " (p. 7). A small arable holding with large areas of pasture attached often represented greater wealth than a large arable holding with little pasture. We must not be misled by the small virgate (p. 5). The inter-manorial management of the great demesne flocks of sheep, the means of rising production, was interlocked in the national economy with the surprisingly widespread peasant-flocks which came to their own in the period of decline and stabilisation (pp. 29–40). As is shown with great skill and clarity in the last four of the six lectures, the transition from the early period of high production for export, in an age " of free trade, of low taxation and of predominance of foreign merchants in English trade ", to the period of manufacture in early modern times, was a slow and uneven process. It did not involve an increase but a stabilisation of production on a lower level. It meant that the foreign merchants and the few great English monopolists who succeeded them in the fourteenth century were followed by smaller, more numerous, middle class companies of merchant adventurers in the later fourteenth and fifteenth centuries. It meant that the middle man, who had marketed the ware of small growers, took the place of the collectors for the great companies and was as useful to the small manufacturing as he was to the exporting interests. Hence the distribution of the growth of wool by peasants and farmers, alongside the managers of great estates or demesne farming, can be said to have contributed to the development and diffusion of a stable middle class of manufacturers and traders. And this middle class was not the exponent of a vested interest, as the monopolists had been, but the class which had the political and social future of England in its keeping. The monopolists, working hand in glove with the Crown, had aroused conscious and informed opposition—an opposition which had a great deal to do with the development of the modern parliament—so that the tendency to an autocratic combination of King and a merchant estate was broken. I should like in this connection to emphasise Dr. Power's point that the economic effects of the special export tax on wool known as the " maltote " were quite well understood by its opponents. " If they fought the issue on abolition and not on consent, it is because they were in fact more interested in the economic consequences of taxation than in constitutional theory" (p. 75). The judgment takes us far. Parliamentary power has been won only by those who knew what they were talking about, and what they wanted.

It is needless to analyse this book further. It must be read. The careful and thoughtful reader will find that nearly every sentence gives food for reflection. My only fear is lest the careless and rapid reader may find it too easy, and may not see the depths which lie beneath its charm and its limpidity.

I think that on p. 87 Dr. Power wrote *Count* of Holland and *Count* of Flanders, not *Court*.

F. M. Powicke.

Great Britain Under Protection. By Frederic Benham. The Macmillan Co., New York. 1941. xvi + 271 pp. 10s. 6d.

This book is one of the series of Commercial and Tariff Histories which the Carnegie Endowment for International Peace is engaged in bringing out. Dr. Benham has performed his task admirably. His description of Britain under Protection conveys the essential information concisely and clearly, while his fair-minded analysis of commercial policy will provide much food for thought for planners of post-war trade on both sides of the Atlantic.

Starting with a brief account of the establishment and subsequent departure from Free Trade, Dr. Benham then explains the main features of the tariff, including a useful summary of the part played by the Import Duties Advisory Committee. He then reviews in turn the numerous other forms of protection which have been applied to particular commodities—familiar stuff this, but it is as well to have it set out neatly. The next two chapters are devoted to Imperial Preference and to the history of British Trade Agreements. To my mind these are the best chapters in the book. The analyses of the hindrances imposed by the Ottawa policy to securing agreements which we should otherwise have preferred with non-Empire suppliers and markets, on the one hand, and of the use (if any) of a tariff as a bargaining weapon on the other, are alike admirable, and of first rate importance for the planning of post-war trade. Later on a chapter each is devoted to two industries which have been peculiarly favoured —iron and steel and agriculture. Here again we are on familiar ground, and Dr. Benham has little to add.

In the remaining chapters Dr. Benham returns to the more general interpretation of economic events, more or less in continuation of the introduction. These sections seem to me the least satisfactory part of the book. Dr. Benham still holds uncompromisingly to the view that it was the height and rigidity of British wages and the want of adaptability of British industry which were the main causes of our undoing in 1931. He even goes so far as to claim that unemployment, the introduction of labour-saving devices in certain industries, and the tendency for capital to be exported were "all . . . consequences of the Unemployment Insurance Scheme" (p. 20). Dr. Benham is perfectly right of course in emphasising that once the pound had been depreciated there was no argument for a tariff. But it seems to me very relevant to recall that already in September, 1931, in the very midst of events, Professor Robertson was telling us[1] that what we were suffering from was the impact of an overproduction crisis, aggravated by (*i*) the rapid application of science to agriculture (leading in this country to a violent change in the terms of trade in relation to our main export markets); (*ii*) the decline in the rate of growth of population; and (*iii*) the durable nature of some of the new consumers' goods—implying that demand for them would be discontinuous. It seems to me that Dr. Benham gives these things altogether too little weight in his analysis. In a sense they are not directly related to his subject. But he does evidently consider that monetary policy and the discussion of other elements in economic recovery are relevant to the understanding of the contribution of protection. That is why I regret that his analysis at this point has not gone a little deeper.

It appears that the series is to be confined to European countries. It would be a real service to the cause of international peace if the Carnegie Endowment were to extend it to cover the commercial and (external) monetary policy of the United States—and further if they would commission an American economist who would expound his country's policy with as much frankness and fairmindedness as Dr. Benham has brought to the analysis of the British case.

URSULA K. HICKS.

German Financial Policies, 1932–1939. By KENYON E. POOLE. Harvard Economic Studies 66. Harvard University Press, Cambridge, Mass. xiv + 276 pp. $3.50.

In some of the more elementary textbooks on veterinary surgery compiled for the benefit of the self-educated farmer one often finds a crudely coloured frontispiece. There a poor beast is depicted suffering at one and the same time from most if not all the known diseases likely to be a nuisance to an owner. If any one living animal had the unlikely misfortune of contracting the same collection of ailments it would most assuredly be eliminated from this world. Professor Poole's book is a vivid reminder that in economics, unlike pastoral industry, alas, it is not merely the fittest that survive—a fact which perhaps goes some way in explaining why a sturdier body of doctrine has not yet been evolved in spite of the many attempts at crossbreeding. It is a collection of all ailments from which on analysis the Nazi Economic System can possibly suffer. Its sad shortcomings are aggravated by the confusion in exposition and in the structure of the book. What is astounding and would demand some explanation is that this book should have been published by Harvard University and that such eminent experts as Professors Hansen, Haberler and Williams should have seen it in manuscript without, apparently, insisting on complete rewriting. A tentative answer may be found perhaps in the repeated attempts of Professor Poole (especially in Chapter III, " Taxes on Profits in Relation to the Business Cycle ", which has little if anything to do with the rest of the book and nothing whatever with the Nazi war economic system) to apply the German or rather the Nazi experiences to the U.S. and point out the failure of public works measures to stimulate *private* investment. It is, of course, this astonishing point of view which is at the same time mainly responsible for the complete failure of the book as an analysis of the Nazi war economic system and leads the author to reiterate wellnigh all trite remarks ever made on the subject.

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[1] *Essays in Monetary Theory*, p. 60.

" For the past seven years "—the introduction to the book starts—" Germany has been engaged in *a series of attempts to raise production and employment above the extremely low levels of* 1931." (My italics.) " Chapter II "—it reads on p. 7—" analyses the problems met with in financing a large volume of public works *with extremely limited means*." One has to rub one's eyes. But there it is in black and white on p. 28 again : " the permanent bettering of the capital market must wait *upon an accumulation at home* (my italics) or an increase in the confidence on the part of investors abroad." " The problem (p. 29) of where the capital was to come from . . ." Again on pp. 74–75 : " In such circumstances (i.e. when *low* national income produces only a limited amount of savings) it is apparent that the Government would be in danger of preempting the private capital market if it set about curing the deficiency of investment through public expenditures." Yet the author has read Mr. Keynes' last book, as his reference on the same page to marginal efficiency shows.

His views on monetary organisation are also worth quoting : " . . . declining (note) cover in 1931 enforced a large issue of silver mark pieces *in order to drive gold out of internal circulation* and make it available to support the standard." This gem is matched by calling exchange restrictions (p. 26) " restrictions on the export of gold . . . have not *yet* been lifted ". " Until 1930 the German Banks were *more solvent* than the Reich, the latter having been forced to borrow from the former at a time when they were still liquid ! " " It (the Reichsbank) forewent any further issues "—this is after the institution of the " new plan " in 1934—" in order to avoid endangering the exchange" (my italics). His description of the Brüning programme brings back to the mind's eye the delightful old days when Professor Robbins in 1932 protested in a letter to the *Economist* against cheap money because it would bring about another and bigger crisis in the end, when Professor Mises mesmerised everyone, and more especially the Liberal German economic experts such as Stolper, Landauer, etc., into believing that exchange depreciation, inflation and price movements are all of a piece and strictly equal in volume. Professor Poole still does.

This is, perhaps, enough to show Professor Poole's approach to the problem. It is not astonishing that he concludes (p. 4) that the German experiment resulted in " a recovery which is admittedly artificial " and that (p. 5) " if there is war, however, and military exigencies require still further efforts, the system is in danger of breaking down." " For the great weakness in the economics practised by totalitarian states is that, if a nation is under a war economy in peacetime, the elasticity needed to permit the entrance into hostilities has largely been removed." Why anyone should think that the production of guns and tanks which takes years of preparation should make a country's striking power less instead of greater is quite inexplicable. But we have been told so too both by economists, e.g. Mr. Crump in the *Sunday Times*, and by politicians irrespective of party. Nor can one be better satisfied when he concludes that the demoniac qualities of the Nazi régime have been " egged on by the economic situation ". To talk of the business men " not seeing their way clear to extend operations " and " the Government being forced, not indeed against its will, to continue the only form of public works . . . namely rearmament," is to misunderstand completely the nature of the Nazi system. In all these pages there is not once a mention of the drastic measures, culminating in complete control, which the Nazis had to take to *restrain* private investment in a riskless economy. To state that it is " inconceivable that the standard of life should not fall " is to leave out of account the possibilities in re-employment and rationalisation (both of which factors he actually mentions). He never undertakes a proof of the proposition that more than the total of newly employed factors have been devoted to rearmament, at any rate prior to 1938.

If these mistakes and misconceptions were not so common, if they had not contributed so much to the unfavourable position in which the Democracies find themselves, the reviewer would not have tried to dissect this book at this length. But there has been a steady stream of literature trying to minimise the terrific expansive force inherent in a planned utilisation of productive resources, a tendency which is especially noticeable when it comes to deal with the international aspects of the problem of cycle-control, i.e. exchange restrictions. The duel which occurred between Dr. Einzig and Dr. Benham shows that even eminent experts disregard the fact that, under " free " or "freeish" trade, resources are underemployed and risk prevents the smooth working of the system. The Central European

States fell economically to Hitler not because they got more or less favourable terms of trade, but because the Nazi system enabled them to produce and sell in a guaranteed market. That certainty would have been of an inestimable benefit even if secured at worse " static " terms of trade. The same applies to the internal system. It is a pity that Professor Poole, who at one point (p. 178) almost discovered this fundamental truth, drops it to talk of profits being dependent on *prices* alone in a heavily capitalised system badly underemployed. The bitterness which the war necessarily engenders will not make it easier to discuss these matters dispassionately and investigate how far we can learn from the Nazi system, which, after all, was a wholly empirical one, in war and even in peace. Yet a study of this problem, the problem whether investment yielding an economic return can be substituted for arms as " stabiliser ", whether there are any hopes of ensuring quicker because unbroken progress without having to rely on private saving, i.e. unequal distribution of national income, whether a system of collective control is compatible with political liberty, these are problems which we have to solve if our reconstruction programme is to be an adequate answer to the " New Plan ", if we are not to commit the errors of the 'twenties over again and produce yet more revolutions internally and eventually another war.

T. Balogh.

Studies in American Demography. By Walter F. Willcox. Cornell University Press. 1940. xxx + 547 pp. $4.50.

A first glance at this volume might lead one to expect to find that the doyen among American statisticians had had the happy idea of collecting and republishing some of his best known papers. In fact Professor Willcox has had a much happier idea ; he has selected a number of papers, and has worked them over, sometimes combining more than one study into a single chapter. Moreover he has made the selection in such a manner that most of the papers form two continuous series, the first on American census statistics (twelve chapters) and the second on American registration statistics (eight chapters) ; there follow four miscellaneous papers and three appendices. The first appendix is concerned with definitions of statistics and demography ; the second is a valiant attempt to grapple once again with the problem of the population of China ; the third contains a bibliography of the more important of the author's writings and lists 117 titles.

Guided by their own particular interests the attention of readers will be drawn in the first instance to different studies. Those among them who have been attracted by the problem of world population will pay first attention to the study of China mentioned above and to the chapter on the population of the world and its modern increase.

Statisticians recognise their debt to Professor Willcox who has spent so much energy struggling with this question in recent decades; this latest revision of his figures for world population since 1650 is of great value and removes some of the difficulty which certain students of his former papers have felt concerning the rates of increase in certain parts of the world which some of his figures implied. Whatever chapter the special interest of readers may cause them to study first, they will all realise that the author stands out among statisticians for his ability to see what problems are worth attacking and can be attacked with hope of success by his methods. He does not indulge in statistical exercises for the sake of the technique, and he does not set himself conundrums. He wants to get on with the job of understanding society better, and to that task he brings profound common sense and wisdom deepened by prolonged experience. There is nothing in this book which is not understandable by the non-mathematical reader; there is no subject treated which is not of considerable general interest.

What he has to say about social statistics in the Preface is thus of unusual interest. He deprecates the view that a statistical office should collect, tabulate and publish statistics, leaving their interpretation to private individuals. "A census report," he says, "should explain what errors may lurk in the figures, estimate, if possible, their trustworthiness, and suggest such inferences as are of more than local importance and would be accepted as trustworthy by competent students. Each successive report, like each observation of an eclipse, should confirm or correct the interpretation put on previous reports and should suggest questions which only future reports can answer." This view of the function of a statistical office is as yet no more accepted here than in America. He goes on to say that while statistics is a form of refined and organised observation which can confirm or correct common observation, its main usefulness is to extend common observation. Some tentative generalisations may be reached; the main contribution of statistics, however, is to establish the facts. He concludes with an outline of the steps needed to make American demography more scientific. It is for others to stress what he has done for American demography, and the greatness of his services can be realised if we reflect how much we should have gained if he had devoted himself to British rather than to American p oblems. Finally it is not out of place to express our thanks to him for the efforts he has made in his retirement to explain to his countrymen his view of the true nature of the present crisis; once again in this matter we have evidence of the sanity and wisdom of his judgments.

A. M. CARR-SAUNDERS.

Culture and Survival. By GUY CHAPMAN. Jonathan Cape. London. 1940. 243 pp. 8s. 6d.

The population problem in all its aspects has received a good deal of attention from many writers in the last few years. It was only a short while ago that the true facts of the demographic situation became generally known. Since then economists and demographers have been busy discussing the probable future of population trends and their consequences, and have studied the effects of pro-natalist policies which have been tried out on the Continent. In Great Britain the broad facts of the demographic situation are known, though a good deal of detail remains to be filled in. Mr. Chapman, however, is not concerned with statistical or demographic details. He attempts to give an explanation of the social facts behind the population problem, to diagnose the disease whose symptoms have been described by the demographers.

His explanation is divided into two parts. A large part of the book is taken up with the history of the rise in the standard of living, the increase of leisure and the changing consumption patterns of the population. The population problem only comes into his argument at a comparatively late stage. He describes three reasons for the family restriction that is practised at the present day. There are first those people who do not want to bring children into the world, at a time when the international situation is as unsettled as at present. In a second class of cases the arrival of another child would depress the standard of living below the actual physical minimum necessary, and in a third, large, group, it would mean that the consumption of luxury or semi-luxury goods would have to be curtailed, or that the chances for already living children of decent nutrition and a good education would be jeopardised. There are no means for assessing the relative importance of these groups, though Mr. Chapman believes the first class to be numerically small, and the second to be important. He admits himself that " the second and third groups are considerably intermixed and it is possible that, according to the standard of life, both the motive of solicitude for existing children and the motive of the standard of expenditure conventionally supposed proper to one's station in life, take shares of more or less equality."

So far there is little new in this analysis. Mr. Chapman goes off the beaten track by emphasising very strongly the pressure that is being exercised on consumers by modern advertising. Demand for certain goods is artificially created, and, having once been created, the former luxury turns into a necessity. The consumer is confronted by a wide variety of goods, and not having received any guidance in his choice, satisfies momentary demands, and is induced to spend so much that he cannot afford to have any children. Family restriction has become a " social complex ". A reversal of this restrictive trend will be difficult to achieve, as it would mean the destruction of a social attitude that has become strongly established. For this reason Mr. Chapman does not believe in family allowances as a pro-natalist policy, though he thinks them desirable on different grounds. A rational education which would build up a new attitude toward the problem is his only hope, though he does not seem over-sanguine as to the chances of its success.

It is probable that there is a considerable amount of truth in Mr. Chapman's analysis, but the way in which he presents his facts is unfortunate. The historical part of the book occupies an undue amount of space, and its connection with the subsequent argument is not always made very clear. He presents very little statistical evidence in support of his assertions, though it must be admitted in his favour that the relevant statistics might be difficult to obtain. Recent evidence of the reversal of the usual trend of differential fertility in large cities would suggest that there is greater adaptation of fertility to purchasing power, but such evidence is still fragmentary. At the present moment, however, there must be available at the Ministry of Labour a large number of family budgets of families of different size. It would be extremely interesting to compare their expenditure on necessaries and luxuries in order to see whether Mr. Chapman's points are borne out by the data.

E. GREBENIK.

The Kress Library of Business and Economics. *Catalogue Covering Material Published through* 1776 *with Data upon Cognate Items in other Harvard Libraries.* Baker Library. Harvard Graduate School of Business Administration. Boston, Mass. 1940. x + 414 pp.

The Kress Library of Harvard University unites several collections of works on economics, including the second of the late Professor Foxwell's famous libraries. As one would expect, this nucleus supplemented by American munificence has made it one of the half-dozen or so finest libraries of its kind in the world. The publication of its catalogue is therefore most welcome and it is to be hoped that the present volume, which gives in chronological order the titles up to 1776 inclusive, will be followed by further volumes.

As a straightforward library catalogue (with only a few hundred cognate titles from other Harvard Libraries included) the present volume is a model of its kind. While its aim is not as ambitious as the late Henry Higgs' *Bibliography of Economics* (1935), nor its production as lavish as that of the catalogue of the late Professor Hollander's library (1937), it excels both by its practically faultless editing. The transcription of the 7,279 titles and the bibliographical description of the volumes are as complete and reliable as could be wished, and the few and short explanatory notes always helpful. They include some judiciously chosen specimens of the notes which Professor Foxwell used to enter in items passing through his hands, like the following characteristic note on Mandeville's *Fable of the Bees*: "A celebrated work, which through Adam Smith had an immense influence on political economy. It is, in fact, if it were sound, the only possible justification of individualism and *laissez faire*."

The careful mentioning of the authors of doubtful or conflicting ascriptions of anonymous publications is particularly to be commended. The comprehensiveness of the collection may be illustrated by the fact that for the years 1751–1775, where it overlaps with the published volume of Higgs' *Bibliography*, it lists 2,095 titles compared with the total 6,741 of the latter, an achievement the more remarkable as the catalogue interprets the term economic somewhat more strictly than the *Bibliography*.

As a reviewer is scarcely thought to have done his duty if he has not found some fault, may I express some doubt about the wisdom of the practice, almost consistently adhered to in the catalogue, of confining the use of initial capital letters to proper names. It looks very strange in German and with titles (" earl ", " baron ", " bart.", " esq.", " freiherr ", and " herr geheimerath ", but " Sir ", " Judge ", " Alderman ", " Reverend ", and—though not consistently—" Abbé "), and there is certainly no excuse for the regular " m " for monsieur if the English equivalent remains " Mr."

F. A. v. HAYEK.

The Social Policy of Nazi Germany. By C. W. GUILLEBAUD. Cambridge University Press. 1941. viii + 134 pp. 3s. 6d.

Mr. Guillebaud sets himself the task to describe Nazi social policy, defining social policy as " State intervention for the purpose of improving the conditions of life and work of the people ". Accordingly, the reader will find in this book a very clear and elaborate account of Nazi policy with regard to such problems as employment, labour conditions, social insurance, birth-rate, and housing.

His description is mainly based on official German sources, occasionally supplemented by interpretations given by Nazi officials. However, this choice of material makes the achievement of his task somewhat difficult. In the main it focuses attention on one aspect of Nazi social policy—the official one. A study of the working of these measures in practice, of their effect upon the every-day life of the people is rarely attempted. The author quite rightly draws our attention to the difficulties involved in a more direct investigation. He especially mentions the fear of reprisals on the part of those whose information would be needed for an investigation of a more concrete character. But he apparently fails to see the limitations thereby imposed upon his analysis. For in spite of the limited material at his disposal, the author feels able to make some very definite statements about the practical value of Nazi social policy.

This failure to consider Nazi measures in actual practice is most serious in his account of the position of labour under the Nazi régime. For without testing the actual working of legal decrees and Government institutions, it is very difficult to discover, not only whether they ever achieved what they were intended to achieve, but also whether they really meant what the Nazis said they meant. To take but one example: the Works Councils under the Weimar Republic, the freely elected representatives of the workers, were replaced under Hitler by "Confidential Councils" whose members must have an "unimpeachable political outlook and are elected by the employees from a list of *suitable persons drawn up by the employer*". The author, in describing the function of these councils, simply quotes the official definition: it is "to deepen the mutual confidence that must exist within the works community" (p. 23). The reader, in assessing the value of this institution, may well ask, not only whether it actually achieved this task, but also whether it was not in fact its main function to create the impression that there still existed a workers' representation within the factory after their former independent representation had been abolished. Upon closer analysis, the "New Labour Law" turns out to be nothing but an attempt to veil the fact that the destruction of trade unions and the prohibition of strikes had removed from the workers all possibility of playing an independent rôle in labour relations. In the same way, the Nazis transformed the former Reichstag, the freely elected representative body of the German people, into another institution of the same name, thereby creating the semblance of popular support for themselves and of complete unity among all classes of the German people. Would Mr. Guillebaud maintain that it still fulfils the functions to which it pretends?

Another limitation of Mr. Guillebaud's approach is perhaps even more important. He sets out to study Nazi social policy with no more than a marginal reference to their general policy. But it is this general policy, the consolidation of their power and the preparation for war, that was dominant. Social policy was no less an integral part of this general policy than rearmament, conscription, self-sufficiency, or the destruction of all democratic institutions. The significance of the wage tax, of social insurance contributions, Labour Front dues and *Winterhilfe* levies as checks on consumption expenditure, for instance, is barely mentioned. It is the neglect of this interdependence, the treatment of social policy apart from its relation to the economic and social system as a whole, that accounts for a certain air of unreality of this book.

Once, however, we accept the limits which the author sets himself, his survey is very illuminating. It successfully dispels the view that terror and secret police are the sole means by which the Nazis keep themselves in power. If there is greater emphasis on achievements in Nazi social policy than on its shortcomings, more stress on the gains of the German people than on the very high price they had to pay for them, it is due to the author's determination, mentioned in the Preface, "to maintain that objectivity which alone would make such a book either worth writing or reading". It is also due to his view that stability of employment and other benefits weigh more heavily in the ordinary man's mind than the sacrifices imposed upon him. In fact, while many other books on Nazi Germany give the impression of widespread discontent among the German people under Nazi rule, Mr. Guillebaud emphasises that in his opinion the majority of the German people, and especially the workers, were on the whole quite content. An exhaustive investigation would probably refute both these generalisations. It would probably be able to show that some social groups were definitely in agreement with the Nazi régime, that others were definitely though secretly hostile, while yet other sections, perhaps the majority of the German people, were and still are wavering according to the conditions prevailing at any given time.

A. RADOMYSLER.

The Structural Basis of Indian Economy. By H. VENKATASUBBIAH. Allen & Unwin. 1940. 150 pp. 7s. 6d.

Mr. Venkatasubbiah's study of the chief factors and forces underlying present-day economic life and tendencies in India is forceful and stimulating, though highly controversial. The author sets out to prove that India's dependence upon Britain's Imperialistic policy, and foreign capital and enterprise, has not only fashioned her economic structure and prevented industrialization, but has made it practically impossible for her to industrialize in the future along Western lines. He supports this thesis by the argument that in India, on the one hand, agriculture has remained backward because the Government " being a branch of empire, standing for dominant interests which are alien and not local ", has not been interested in the progress of agriculture, so that the historical urge experienced in other countries to break through landlordism has been absent ; whilst, on the other hand, industrial capitalism in India, being predominantly of alien extraction, has been purely exploitive instead of constructive. It is argued that economic progress is invariably primarily dependent upon State action, whilst in India the alien Government has lacked any incentive to pursue a progressive policy. The conclusion is that no foundations have been laid in India for industrialization of the Western type, and that the only hope is for advance along socialistic lines.

This argument obviously rests upon large assumptions, particularly with regard to the part played by the State in the past in stimulating progress in economically advanced countries. These assumptions are neither clearly stated nor closely argued. It would, indeed, be difficult to prove that the industrial progress of Great Britain or the United States has been primarily due to State intervention. On the other hand, it is undeniable that in many respects the policy pursued in India has failed to tackle her fundamental economic problems, and Mr. Venkatasubbiah puts his finger on many weak spots, including the land system.

The details of Mr. Venkatasubbiah's study are often illuminating, and include a number of interesting attempts to supplement the information supplied by official statistics and other records. He has, for instance, attempted to measure the trend of agricultural output and the amount of foreign capital invested in India by ingenious means which, if not wholly convincing, at least point the way for further research into these important matters. But he often spoils his results by omitting to note certain facts which throw doubt on his interpretation. For instance, he fails to draw attention to the extreme unreliability of the official estimates of agricultural yields, which tend to underestimate the improvements accruing from agricultural research in India. His statistical series also tend to stop at the depth of the depression (1931–2), and thus give an unduly pessimistic picture of the general trend. Attention may also be called to his curious explanation of the adoption of the Mahalwari system of land settlement, which he attributes to the failure of the Zamindari and Ryotwari systems, without referring to the peculiar local conditions which undoubtedly influenced the Government's decision to prefer this system in certain Provinces and districts. He also completely ignores the great reductions in land revenue demand made during the course of the 19th century and makes no reference to the burden of rents which is, to-day, undoubtedly far more oppressive than that of land revenue.

A similar bias is shown in his analysis of the organisation and development of India's industries. The impression is given that foreign capital has tended to play an ever-increasing part in the finance of India's modern industries, which was the reverse of the truth even before the outbreak of the present war. The fact is that the flow of foreign capital to India has been markedly checked for a number of years—the large new sugar-refining industry, which Mr. Venkatasubbiah never even mentions, has been entirely promoted by Indian capital—whilst the present war will probably achieve the repatriation of the greater part not only of the Government's foreign loans but also of the capital invested in modern industries. But, above all, the absence of any reference to the adoption since 1923 of a policy of discriminating protection in India can only be attributed to a desire to avoid admitting that the Government has pursued any policy of which Mr. Venkatasubbiah approves. Finally it may be remarked that Appendix A on India's industrial potentialities entirely ignores hydroelectricity and oil.

VERA ANSTEY.

Economic Geography of South America. By R. H. WHITBECK, F. E. WILLIAMS and W. F. CHRISTIANS. McGraw-Hill Publishing Co., Ltd. 1940. xi + 469 pp.

South America is a stage upon which the great drama of man's relationship to his physical and economic environment has progressed but a short way. With about one-seventh of the land surface of the world the continent has but one-thirtieth of the world's population. Only five per cent. of its area is cultivated, and nine-tenths of that is in the two states of Brazil and Argentina. Some 44 per cent.—a greater proportion than in any other continent—is forested, yet the annual value of forest products exported is less than the figure for Sweden. Of its main mineral resources, precious metals and oil are alike in the ephemeral character of the activities to which they give rise, whilst nitrates, which might have been expected to be otherwise, have been undercut by the products of scientific discovery; moreover, the value of the entire mineral output is less in a year than that of the coal mined in Pennsylvania.

There is no simple answer to the question why all this should be so. The elementary facts of geographical position, affecting climate and vegetation, are, of course, ultimately responsible for a great deal, but relief and geology exercise a powerful influence, whilst the type of people, their historical background, cultural development and form of government are other factors of varying importance. The influence of foreign capital must also be considered. "The people of large wealth have the greater part of it in land; they either cannot or will not use this wealth freely in the purchase of bonds or stocks of railways and industrial enterprises." In consequence large sums have flowed in from abroad in a variable stream, attracted by the prospects of high yields, hindered by the investors' lack of confidence in the stability of the various governments. Some four-ninths of all the capital invested in South America is of British origin.

Whitbeck's volume had been a standard college text for more than a decade, and it was inevitable that a new edition would be called for at some time after his death. Professor Williams has had no easy task, for development has been possibly more rapid during the past ten years than at almost any previous period in the history of the continent. A certain amount of reshuffling of the material was to be expected; certain chapters have been rearranged to treat of regions rather than topics, whilst in other cases the rearrangement serves to give a more balanced picture of the economy of a certain state; the section on Colombia has been almost completely rewritten. Some valuable general maps of the continent have been added in the introductory chapter, and many other maps and photographs have been added or substituted. The only retrograde step taken by the junior author would seem to be the removal to the end of the book of the bibliographies which accompanied each chapter; for material on any country one must now look through the whole bibliography which is arranged alphabetically by authors.

The book will undoubtedly maintain its popularity with students of geography. It should also prove interesting and helpful to economists and business men by assisting their understanding of the environment and the problems of a continent which has been and will continue to be such a fertile field for the investment of capital.

S. H. Beaver.

SHORTER NOTICES

Research in International Economics by Federal Agencies. By SANFORD SCHWARZ. (International Economic Handbooks, edited by Eugene Staley for the Division of Economics and History of the Carnegie Endowment for International Peace, No. 2.) New York: Columbia University Press. London: Oxford University Press. 1941. xxxix + 357 pp. 12s. 6d.

This somewhat forbidding title hides one of the most useful handbooks for the economist. It is a guide to the ever increasing number of U.S. government publications on economic matters. As Professor Staley says in his Foreword, " Service as a check-list, both for private libraries and for libraries of educational and business institutions, will doubtless be one of the chief uses of the book." But it would be a pity if it were used solely as a work of reference and not also occasionally read. There are few better ways of obtaining a conspectus of the impressive amount of factual information which the industry of American government economists and statisticians has collected on an astounding variety of subjects.

The description is conveniently divided into two main parts of about equal length, the first dealing with the agencies and the second with the fields of research. This is followed by a " Finding List of Government Publications " and completed by a very full index.

The Reciprocal Trade Agreements Program. By GRACE BECKETT. Columbia University Press and Humphrey Milford. 1941. 142 pp. 13s. 6d. net.

In 1934 Congress amended the Tariff Act of 1930. The amendment gave the President power to make foreign trade agreements and to modify existing duties, for this purpose, by as much as 50 per cent. He could not, however, alter the free list.

The chief motive for this amendment was the very heavy unemployment, which the devaluation of the dollar had failed to remove. Since 1929 the foreign trade of the United States had fallen drastically, more than that of most countries. It was hoped that trade agreements would promote her exports. At the same time, it was desired to avoid any great inflow of commodities competing with similar American products. " Consequently, rates have had to be reduced with care and caution."

Twenty-two Agreements were made up to the close of 1939. Concessions made by the United States were extended to all countries receiving most-favoured-nation treatment from her, although considerable use was made, especially in the agreement with the United Kingdom, of " re-classification ", in order to restrict the benefit mainly to the country for which it was intended. Over 1,000 rates were reduced and more than 50 " bound " ; some 150 items on the free list were bound.

Miss Beckett's study is altogether admirable. She gives us concisely and clearly exactly the information which we need. Her conclusion is that the trade agreements programme has not produced any spectacular change, but has brought about some (although not very much) " liberalisation " of trade and has been important to the United States " as a stop-loss device ".

The British Empire in Australia. By BRIAN FITZPATRICK. Melbourne University Press. 1941. 529 pp. 21s.

Despite its odd title, this formidable volume is just another economic history of Australia—from 1834 to 1939. The story of Australia is full of colour. The convicts, the explorers riding over the ranges, the squatters, the gold rushes, the multiplication of vast flocks of sheep, the great drought of the nineties, the fight for Federation; the early struggles of Labour, the great strikes, and the shaping of the most comprehensive arbitration system in the world; the growth of city and factory, the fluctuations in the inflow of immigrants and capital, the way the depression was fought and conquered in the early thirties. What a film it would make! But not from this script. This is based on a great deal of hard work and research, as we cannot fail to realise. It is packed with facts and figures (correct to two decimal places), inaccuracies of earlier writers are sternly corrected, and sentences such as " wool remained an undiminished factor while other phenomena made the rounds " compel the reader's close attention. Some of the facts—for example, those about the B.H.P. and other great private companies—are not easy to find elsewhere; and we must thank the author for mercifully penning various concentrated doses of information into twenty appendices. His book will be essential, as a work of reference, to the most serious students of the subject.

An Introduction to Political Economy. By V. W. BLADEN. University of Toronto Press. 1941. 299 pp. $2.25.

This work contains no diagram and no equation; nothing about marginal costs or diminishing returns or interest; almost nothing about money and banking or international trade or public finance. Professor Bladen explains that " it is intended to be read along with other books ". Much of it is occupied with detailed studies of certain aspects of Canadian economic history and present problems: wheat, newsprint, public policy towards combines, trade unions. In my view, this would be better as the basis of a separate work. But Professor Bladen stresses the phrase " political economy " and the importance of the State; he wants to discuss the real world. We must sympathise with his attitude; and he has certainly drawn upon his wide reading and knowledge to produce a stimulating book, full of apt illustrations and interesting facts.

Those Raw Materials. By C. A. Ward. Allen & Unwin. 1941. 392 pp. 15s. net.

This book covers nearly all raw materials of any importance. (To justify the " nearly " we note that almonds and tanning materials are omitted.) It tells us what they are, what they are used for, and how they are prepared. The language is, inevitably, technical. For example, the present reviewer wished to verify a notion that " Buna " rubber was made mainly from lime and coal. He read that " German Buna rubbers come under the category of butadiene polymers or polymers of butadiene and other polymerisable substances ". He chased butadiene to acetylene and acetylene to calcium carbide and calcium carbide to lime, but " polymerisation " did not lead him to coal or any other material. This, however, was rather an unfortunate instance. The book is undoubtedly comprehensive and useful. It contains special notes on coal and petroleum, and there is a valuable bibliography.

Nazi Europe and World Trade. By Cleona Lewis. The Brookings Institution, Washington. 1941. 194 pp. $2.00.

" The question considered in this book is the future position in world trade of a German-dominated continent of Europe—excluding Russia and the States in the Russian sphere. Conceiving this area as a single country, and regarding the trade between its component parts as internal trade, the author undertakes to determine what problems it would face with regard to external trade." The study is based on a careful analysis of trade statistics for 1929 and 1937. " Nazi Europe " had a large surplus of imports—1,300 million dollars in 1937—offset mainly by tourist receipts, remittances from emigrants, and shipping earnings. The area is " deficient " in fats, vegetable oils, feedstuffs ; in petroleum ; in most textile materials ; in natural rubber ; in copper and most alloy metals. The facts (for 1929 and 1937) are well set out and discussed. But the book does not profess to forecast what will happen after the war, nor does it appraise Germany's vulnerability to blockade. It claims only to be " a valuable reference source ". Granted.

Solving Labour Problems in Australia. By Ornell de R. Foenander. Melbourne University Press. 1941. 168 pp. 15s. net.

This book is mainly about the Commonwealth Court of Conciliation and Arbitration, which was set up by the Act of 1904 to prevent and settle industrial disputes and which, in fact, fixes wages, hours and other conditions of employment for most Australian workers. In 1937 Mr. Foenander published *Towards Industrial Peace in Australia*, a very useful history, survey and analysis of the working of the arbitration system in that country. The present book is a supplement and sequel. It brings the story up to date and discusses some problems more fully. In particular, it deals at length with the regulations and wage-rates prescribed by the Court for the pastoral industry and the coal-mining industry, and with the reasons for the Court's decisions. It is fully documented and indexed, and is a valuable and thoughtful contribution to the subject.

Centralised vs. Decentralised Government in Relation to Democracy. By PAUL STUDENSKI and PAUL R. MORT. Bureau of Publications, Teachers College, Columbia University, New York. 1941. 69 pp.

This straightforward and unpretentious " Review of the Arguments Advanced in the Literature of the Various Nations " on the problem indicated by the title is not without interest to the economist. Although it appears from this collection of quotations that on the whole political scientists have not much advanced beyond J. S. Mill's dictum (duly recorded) that " the authority which is most conversant with principles should be supreme over principles, while that which is most competent in details should have the details left to it. The principal business of the central authority should be to give instructions ; of the local authority to apply them. Power may be localised, but knowledge to be most useful must be centralised," the consideration expressed in it has a new application in connection with economic planning.

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URLANIS, B. U.: *The Growth of Population in Europe.* All-Union Society for Cultural Relations with Foreign Countries, Moscow. 1941. 433 pp.

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What is the Best Tax-System?

By Frederic Benham

I

Such a question as whether savings should be exempted from income-tax cannot be considered adequately if it is discussed as a self-contained and isolated topic. It is connected with a number of other questions, notably those concerning the taxation of capital gains, undistributed profits, receipts from wasting assets (such as mines), gifts, and bequests. In order to answer all such questions, and to give answers which are consistent with one another, one must first decide what concept of income is the most suitable for purposes of taxation. In this article I shall discuss two such concepts, each of which is clear-cut and provides clear answers to all such questions.

But should there be no other taxes in addition to a tax on income? If we think so, then we must give reasons for thinking so. If, on the other hand, we think that there should be other taxes as well, we may not completely answer our various questions by considering only the definition of income. In any event, therefore, we are compelled to discuss the wider question of what tax-system is best.

This means that we must lay down criteria by which we can decide whether one kind of tax-system is better than another. All such criteria must inevitably be arbitrary. There is no way of proving that one is right and another wrong. I believe, however, that the two which I shall adopt will meet with the approval of most readers.

For the purposes of this discussion, I shall leave out of account the standpoint of the Chancellor of the Exchequer. He wants to get revenue by taxes with good yields which are easy to collect and difficult to evade and which arouse relatively little discontent and opposition. He would regard old and tried revenue-producers such as the duties on beer and tobacco, to which people have become accustomed, as admirable taxes. It could be argued that it follows from the principles of democracy that his standpoint is the correct one: people get the taxes which they dislike least. But this may be because they do not realise fully the consequences of these taxes. At any rate, I shall adopt a rather " superior " attitude, similar to that of a democratic economist who argues for free trade whilst conceding that if people want protection they must have it, and shall ignore the considerations which influence the Chancellor. These must, of course, be given due weight in practice. But this article is concerned with the other, non-administrative, considerations which also should be taken into account. What tax-system would be the ideal one, and why, if the Chancellor were indifferent as between one system and another? This is the question we shall try to answer.

Some taxes are imposed to achieve particular social purposes. Thus land taxes which are "progressive" according to the size of the estate may be imposed in order to break up the large estates. Such purposes can often be achieved more fully and exactly by direct legislation. If the indirect method, of taxation, is the most suitable, our views on such taxes will depend on how far we approve of the purposes they are meant to achieve. In what follows I shall leave such taxes on one side.

I now come to my two criteria. In the first place, the taxing authority should be able to arrange that two persons in the same economic position pay the same sum and that a richer person pays more than a poorer. This is usually considered fair. Further, the taxing authority should be able to arrange for taxation to be more or less steeply progressive, a richer person paying a larger proportion of his wealth than a poorer. This is considered desirable by many people. The best tax-system on this criterion, which we may call briefly the criterion of "ability to pay", will be that which enables these arrangements to be made, and carried out, with the greatest accuracy.

In the second place, any tax changes the objective inducements to a tax-payer to follow one course rather than another. For example, a tax on one commodity usually raises its price and in consequence people buy less of it than if they had been made to pay the same sum (which they now pay "wrapped up" in the prices of those units of the commodity which they still purchase) in the form of a direct money tax. Our second criterion, which we may call briefly that of "least price-distortion", is that a tax-system should change these objective inducements as little as possible.

It will doubtless be objected that the existing objective inducements—which we may call for brevity the price-system—are far from perfect. Relative prices should reflect relative social costs, and they often do not. For example, the price-system may be distorted by monopoly. The answer to this is that such imperfections should be removed by direct action. For example, monopolies should be suppressed or controlled. In any event, further distortion by taxes is as likely to make the price-system still worse as to make it better. But even if the price-system were perfect the question which we are discussing would still have to be answered. We shall therefore rule out this objection as irrelevant to our theoretical discussion.

If we accept these two criteria, it follows that taxes on particular commodities are usually bad.[1] They discriminate against people whose preference for the taxed commodities is relatively strong. Thus a tobacco tax discriminates against smokers. Further, such taxes impose an "excess burden" on consumers who cut down their consumption of the taxed commodities more than they would if extra income-taxation, yielding the same revenue, were imposed on them instead. To that extent, consumers suffer a loss against which the State gets no revenue.[1]

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[1] A notable exception is the taxation of petrol and motor vehicles in so far as it covers only the cost of the roads: here the tax is a kind of price paid for special benefits received.

This is true of all such taxes, including those on commodities or services (such as champagne, or hotel-bills over a certain sum) bought only by the rich. But the chief revenue-producers among commodity taxes are usually those on commodities widely consumed by the poor, whose demand for them is relatively inelastic. Such taxes are in direct conflict with the "ability to pay" criterion. They are regressive: they increase the inequality of income. Thus in Great Britain many workers getting low wages buy nearly as much tobacco and beer as those in higher income-groups. Thus they pay a greater percentage of their incomes in taxation (of all kinds) than do others earning considerably more. As Simons remarks[2]: "It seems a little absurd to go around arguing that poor people could or ought to do without tobacco, especially if it is taxed, in the face of the facts that they simply do not do anything of the kind, that the commodity was selected for taxation because they are not expected to do so, and that the government would not get much revenue if they did. The plain fact, to one not confused by moralistic distinctions between necessities and luxuries, is simply that taxes like the tobacco taxes are the most effective means available for draining government revenues out from the very bottom of the income scale."

Taxes on particular activities or forms of organisation or kinds of property, imposed merely to raise revenue, are usually bad. Thus a tax on windows tends to reduce the number of windows. A householder who puts up with fewer windows than he would have if they were not taxed clearly suffers an inconvenience; the more windows he goes without, the greater is his inconvenience and the less does the State receive from him as window-tax. If one particular type of assets is taxed the flow of investment into assets of that type is checked until the yield per £100 invested exceeds the yield on untaxed assets by the amount of the tax. A tax on doctors keeps down the numbers entering the medical profession; a tax on companies prevents some firms, who would otherwise find it to their advantage to do so, from turning themselves into companies; a tax on houses checks building.[3] The price-system is distorted.

Our conclusion must be that the only taxes—apart from taxes such

[1] See "The Excess Burden of Indirect Taxation," by M. F. W. Joseph in the *Review of Economic Studies*, Vol. VI, No. 3, June, 1929, p. 226.

[2] *Personal Income Taxation*, by Henry C. Simons, p. 39 note.

[3] Taxes on buildings (local rates) which are spent *only* in ("beneficial") ways which benefit the occupier of a building, and raise its annual value by the amount of the annual tax, are virtually prices for services rendered and desired, and do not check building. If they are spent on other ("onerous") purposes, such as poor relief, they do.

as those we have mentioned in footnotes as closely resembling prices paid for benefits received—which are likely to conform to our criteria are " direct " taxes levied on persons according to some index of their ability to pay.

This index, or combination of indexes, must be objective and measurable. It may be that one man gets far more utility than another from the same income. But even if we could measure this (and we cannot), it is not clear whether we should tax him more lightly in order to increase the total utility in the community or whether we should tax him more heavily on the ground that his capacity for getting more utility than other people out of a given income implies that his ability to pay is greater. And in practice a democratic State cannot tax people differently because of assumed differences in their capacity to obtain utility. It must tax as if all citizens were alike in such respects. Its tax-laws must apply to all citizens and must refer to objective and measurable facts.

Some writers assert or imply that the sole index should be the income of a person, and discussion has concerned itself with what definition of income is the most suitable for income-tax purposes. We shall examine the two main definitions, in the light of our two criteria, in the two following sections. There are plenty of other definitions—notably those laid down in the income-tax laws of various countries—but these are all somewhat arbitrary compromises, made for administrative convenience, and we shall not discuss them.

II

Professor Irving Fisher strongly advocates,[1] and has advocated in numerous writings since the close of the last century, a simple and clear-cut definition of income. Income, he says, is consumption. All that a person consumes is income. Nothing that he does not consume is income.

On this view, savings would be exempt from tax, but capital withdrawn and spent would be taxed. Undistributed profits would not be taxed. Capital gains would be taxed only in so far as they were realised and spent. Receipts from wasting assets, such as mines, would be taxed if they were spent. So would gifts and bequests. In fact, Fisher wants a tax on expenditure for personal consumption, and on that alone.

He gives many arithmetical examples to support his view. They are all of the following type. Two persons begin with the same capital sum on the same date. One saves the interest for some years and thus adds to his capital and increases his income from it in the future ; the other withdraws and spends his capital. The former pays much more in taxation, under the present system, than the latter. Yet they both began with the same sum and therefore both should pay the same, over future years, in taxation.

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[1] His latest restatement is his essay " Income in Theory and Income Taxation in Practice " in *Econometrica*, V, No. 1 (January, 1937).

"To an unsympathetic critic," says Simons,[1] "Fisher's main point still seems to be that anything which is called an income-tax ought to be a tax on what Fisher calls income." This is a little harsh. It can be argued that Fisher's definition follows from our second criterion.

Fisher claims that an income-tax of the usual type differentiates against saving and in favour of spending. J. S. Mill made the same point. Many economists, including Professor Pigou, agree with it.

The point is that, under the present system of income-taxation, income saved is taxed when it is received and then the fruits of it are taxed as well. The reply is sometimes made that under Fisher's plan there would equally be double taxation because under that plan interest is taxed when it is received and spent and then the capital is taxed when it is withdrawn and spent. Thus the late Lord Stamp wrote[2]: "Let us assume that a man saves £100 and at the end of ten years has had £5 per annum and still having his £100 he then spends it. He pays tax in all upon £150, either under the present system, when his tax is on the £100 at first and the £50 by annual instalments afterwards, or under an alternative system of taxation on expenditure, where he pays on £5 a year for ten years and on £100 in the tenth." Judged solely by our criterion of "least price-distortion", this reply is wrong. For at a rate of interest of 5 per cent., £100 now *equals* £5 a year for ten years plus £100 at the end. In general terms, at a rate of interest of r per cent. £100 now equals £r a year for any finite number of years plus £100 at the end. The two are the same thing in that they can be exchanged against one another in the market. Anybody with a bond yielding £r a year can sell it at any time for £100; and anybody with £100 can buy a bond yielding £r a year, can receive £r a year on it for as long as he cares to hold it and can then sell it, the rate of interest still being r per cent., for £100. Hence there is no double taxation on Fisher's plan; taxing the fruits and then the £100 at the end (when it is withdrawn and spent) is equivalent to taxing the £100 at the beginning and *not* taxing it or its fruits subsequently.

Perhaps the most convincing argument for the Fisher plan, of taxing only consumption, is this. Suppose the rate of interest is 4 per cent. With income-tax at 10/– in the pound, £200 of income now is reduced to £100 available for spending or saving. If saved, at the end of a year it will have become £104, but half of the £4 is taken in tax, so that the net yield is only 2 per cent. Under a spending tax of 100 per cent., £200 spent now would buy £100 of goods. If invested for a year, it would become £208, which would buy £104 of goods. The effective rate of interest would not be changed by the Fisher tax, but it is halved by an income-tax of the present type of 10/– in the pound.

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[1] Op. cit., p. 226.

[2] *Fundamental Principles of Taxation*, 1936 ed., p. 60.

Against this, it may be urged that the existing price-system in general and the existing rate of interest in particular are imperfect. We have already answered this argument: if the price-system is imperfect it should be changed by direct measures. Those who would raise this objection probably believe that people are offered too little inducement to invest. But our present system of taxation makes this inducement still less. For income-tax at 10/- in the pound reduces the rate of profit on capital (whether borrowed or not) by half. This would be avoided under Fisher's plan.

Let us now turn to our first criterion, of ability to pay. The assumption on which the Fisher view is based is that the sole purpose of economic activity is consumption, and that a person enjoys the fruits of his labours or investments only when he consumes them. But this is not so. The possession of assets gives power, independence, security, prestige. Those critics were right who said it was absurd to propose that Hetty Green, the American millionairess who spent so remarkably little, should pay tax only on what she spent. The profound practical wisdom of Lord Stamp rightly prevented him from accepting the proposition that a person holding assets over a period is in no better economic position than one who spends the same amount but holds no assets. A person's economic position and therefore his ability to pay depends on his assets as well as on his consumption. Judged by our first criterion, Fisher's definition fails.

The administrative difficulties of taxing only consumption would be formidable if we wished to keep taxation progressive. If incomes were much more nearly equal, taxation perhaps need not be progressive and a general sales tax could be substituted for an income-tax of the present type. In that event only final sales of consumers' goods to consumers should be taxed—otherwise we should get an aggravation of what Fisher wants to avoid[1]—and they all should be taxed the same percentage.

Professor Pigou, who is very sympathetic towards Fisher's proposal, declares that exemption of saving from taxable income would achieve its aim, but that this is administratively impossible. "Dishonest citizens might save in one year, thus escaping taxation, and secretly sell out and spend their savings in the next year."[2]

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[1] A tax on all money sales would be very bad. It would lead to integration which otherwise would not have paid, so that firms could avoid tax by carrying out successive processes in the same works. It would lead to the "pyramiding" of the tax when the raw materials and intermediate goods changed hands a number of times before becoming final products. And it would tax both instrumental goods, such as machines, and their products, which is what Fisher wants to avoid.

[2] *A Study in Public Finance*, p. 140. Incidentally, exemption of savings under the present system would do more than remove the differentiation against saving. It would differentiate in favour of saving. For savings would not be taxed when they were made, as they would be exempted, nor would they be taxed when the capital was withdrawn and spent, for capital withdrawn for consumption does not form part of taxable income under the present system. Hence only the interest on the capital, and never the capital itself, would be subject to income tax.

Professor Fisher himself, however, believes that such difficulties could be overcome.

III

The rival concept of personal income is that of gain. A person's income over a period may be considered to be what he receives, less business expenses, during that period. He may consume all that he receives or he may consume some of it and save the rest.

But under the income-tax laws of Great Britain (and of most countries) not all that he receives is counted as income. Gifts are not included. Nor are sums received by inheritance—although there is the complication that in most countries these are subjected to special taxation. Nor are capital gains.

Let us consider this last point. Suppose that at the beginning of the year my assets have a market value of £10,000 and that at the end of the year their market value has risen to £15,000. Surely my prosperity over the year is not properly measured by the few hundred pounds which I may have received and spent. In order to measure the change in my economic position over the year, and to compare it with that of another person, the £5,000 should be included as well: after all, I can realise it and spend it if I wish, and still be left with assets of the same value as I had at the beginning of the year.

If this is granted, it follows that capital losses should be deducted. If I begin the year with assets worth £15,000 and they fall in price to £10,000 at the end of the year, I am then in a worse position. My income for the year is negative. It is the few hundred pounds which I have received and spent less £5,000.

Hence some economists contend that a person's income over a period is the value of his assets at the end of the period less the value of his assets at the beginning of the period plus the value of his consumption during the period. Among these economists is Professor Henry C. Simons of the University of Chicago. His book entitled *Personal Income Taxation*, published in 1938, is one of the very few first-class books on the theory of public finance. It deserves far more attention in this country than it has hitherto received. It so happens that I disagree with his main thesis, but I do so with great diffidence. According to him " taxable income, properly, is a kind of measure of the individual's prosperity—or, in the language of Professor Haig, a ' measure ' of the net accretion of one's economic power between two points of time (if one includes power exercised for consumption purposes)."[1]

The most important change in practice desired by Simons and others who advocate this definition is the taxation of capital gains. At present they are taxed, but not fully, in the United States but not elsewhere. In Great Britain we still adhere to the recommendation of the 1920 Royal Commission on Income Taxation: ". . . Profits that arise from ordinary changes of investment should normally remain outside the scope of the tax, but they should, nevertheless, be charged if and when they constitute a regular source of profit." At the present time in this country the highest slices of income pay 19/6 in the pound, so that for a very rich man sixpennyworth of capital appreciation is worth another £1 in dividends. Thus it might now handsomely pay a rich man, subject to high rates of surtax, to sell income-yielding assets and to buy instead assets which may considerably increase in value within a few years although (possibly because they are in enemy-occupied territory) they yield nothing at present. When they have increased in value he will be able to sell them and will pay no tax whatever on his capital gains.

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[1] Simons, op. cit., p. 206.

Nevertheless when we apply our two criteria this definition of income must be rejected. Judged by the first, it is superior to Fisher's, for it does give some weight to assets as well as to consumption, but it is defective in that it does not give enough weight to them. It measures only the *change* in a person's economic position over a period. But his ability to pay depends on his *total* economic position and not only on the change which takes place in it. Suppose that two men consume the same amount during a year, but that one has substantial assets (which remain unchanged in value) and the other has none. Surely the former should pay more than the latter. We should take account of the total value of assets.

Another difficulty is that changes in the general level of prices, or in the rate of interest, present problems which are practically insoluble under this definition. Thus a substantial fall in the price-level of assets would give many taxpayers a negative income on this definition, although the physical nature of their property and the money yield from it both remained unchanged.

What about our second criterion? This plan would not escape Fisher's strictures any more than the present system, for under it savings would be taxed as soon as they appeared in the form of additional assets and then the income from them would be taxed when it was spent. The more risky and speculative types of investment would be discouraged because there would be less incentive to make capital gains if all the gains were to be included in taxable income.

It will be noted that this definition of income, which we reject, would give a clear guide on the questions we mentioned at the beginning of this article. Undistributed profits as such would not be taxed, but in so far as they were reflected in increased share values the persons holding the shares would be taxed on their capital gains. In so far as the depletion of wasting assets was reflected in a fall in the value of the shares the holders of the shares would count this as a capital loss; in so far as they consumed the dividends which partly represented a return of capital they would pay a consumption tax on them. Sums received by gift or inheritance would be taxed in the hands of the recipient whether he consumed them or held them, thus increasing his total assets.

Professor Simons does not propose to apply rigorously the definition of income which he thinks is theoretically best. He is very conscious of the administrative difficulties. Indeed, rather surprisingly, he believes that even capital gains could not be taxed until " realised ". Hence his book is concerned largely with suggestions for remedying the defects of the present American tax system in ways which seem to him the best practicable but which fall considerably short of his theoretical ideal.

IV

Our discussion so far has led us to the conclusion that income alone is not a sufficient measure of ability to pay. We must take account also of assets.

Would the ideal tax-system consist of *two* personal taxes—one on income and one on assets ? The tax on income would be on income as defined by Fisher. It would be a tax on consumption. But in form it would be an income-tax (and not a general sales tax) in order to make the tax progressive, and to give allowances (for example, for children). Professor Irving Fisher, in the article to which we have referred, drafts a questionnaire to be filled up by each taxpayer which in his view would enable income-tax to be charged on consumption. The tax on assets would be meant to cover all the advantages of holding assets other than the income obtained from them. The latter, in so far as it was spent, would be taxed by the income- (or consumption-) tax. This tax on assets would be a relatively *small* one. Suppose that an additional £100 of assets yields a fairly safe £3 a year, which is spent. Half or more of this £3—the greater the annual consumption of the tax-payer the higher the rate of tax on him—would be paid in income-tax. If in addition he had to pay 1½ per cent. or so per year as " assets tax " upon this additional £100, its net income-yield to him would be zero or negative. Even before the war, our income-tax and surtax plus death duties brought about this kind of result : the taxation (including death duties) which a large personal " estate " had to pay exceeded the yield from it and part of it had to be sold, sooner or later, to pay taxes. Assets were becoming somewhat less unevenly distributed among persons. High war taxation is speeding up this process. But it is probable that an *annual* assets tax would check investment more than death duties. I doubt whether it would be wise to make the *average* rate of assets tax more than about 1 per cent.

Doubtless further refinements could be made. In particular, some account could be taken of leisure. One man is in a better economic position than another if he has the same assets and income but more leisure. It could be argued that he could obtain a larger income if he chose to do more work, and that leisure should be included with consumption-goods and made subject to tax. But apart from such refinements these two taxes, taken together, satisfy fairly well our first criterion, of ability to pay.

We turn to our second criterion. Differentiation between saving and spending has been avoided by making the "income-tax" a tax on consumption.[1] Unfortunately other "differentiations" remain.

The most important of these is the differentiation against risky investments which, when successful, give a high yield. A man who invests a given sum in such ways may have to pay much more in taxation than another man who uses a similar sum to buy works of art or keeps it idle in the form of a bank deposit. Our second criterion does not imply that risky or speculative investments should be favoured or encouraged. But it does imply that the objective inducements to hold assets in one form rather than another—for example in industrial shares rather than Government stock—should not be altered by taxation. Yet how could this criterion be satisfied? Only by taking the value of a person's assets at a given point of time and saying: "We shall regard *this* as your fortune. Whatever you choose to do with it, however much or little it yields, it is upon this that you will pay tax—'assets tax'—each year."

This would hardly be practicable. Still less would it be practicable to do the same thing for earning capacity: to tell a person: "Your earning capacity is £1,000 a year and you will be taxed upon this, however much or little you actually earn." Yet the fact that we do not do this means that high *marginal* rates of taxation upon earnings may seriously check incentives to work.[2]

But why would this kind of procedure not be practicable? This can best be shown by an example of the Fisher type (although Professor Fisher himself usually assumes that all investments yield the same rate of interest or profit). Suppose two brothers each begin with £10,000. One takes risks, and is lucky, so that his fortune becomes much bigger. The other also takes risks, but is unlucky, and loses most of his money. Most people would think it very unfair to tax both brothers alike during subsequent years. (Yet that is what Professor Fisher urges, if one increases his capital by accumulation and the other withdraws and spends his. Professor Fisher, judging solely by our second criterion, contends that the present discounted value of all future taxes to be paid by the two brothers should be the same for both because they each began with the same capital sum.)

The cat is now completely out of the bag. *Our two criteria are incompatible with one another.* If we tax according to ability to pay we are bound to discriminate against all types of action now which increase ability to pay in the future. Yet we did not choose these two criteria arbitrarily. Most writers who discuss "principles of taxation" have both of them in mind. This largely explains why all such discussions must appear somewhat inconclusive and unsatisfactory. Even the ideal tax-system of theory is bound to be a compromise between these two criteria. And in practice we must take account also of administrative difficulties: of the standpoint of the Chancellor of the Exchequer.

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[1] Although the proposed assets-tax differentiates a little against saving.

[2] See the admirable article "Economic Incentive in Wartime," by F. W. Paish in ECONOMICA for August, 1941.

V

Nevertheless this rather defeatist conclusion does not mean that our present tax-system is the best possible. Many improvements could be suggested. I will confine myself to three.

(1) The present income-tax on unearned (property) incomes should be abolished and replaced by an annual progressive tax on the value of a person's total assets. This should be a rather large tax, yielding as much as or more than the present tax on unearned incomes. The latter is a bad tax. It differentiates against enterprise and risk-taking, and favours persons who hold their assets in the form of fairly safe securities, or who hoard them, or who get direct enjoyment from them by owning pictures, furniture, jewellery, and similar durable goods. As it is (rightly) progressive, it weights the odds against risk-taking, because the State takes a proportionately larger slice if the risk turns out successfully. Further, it differentiates against incomes, such as those arising from investments in industries specially subject to cyclical fluctuations, which fluctuate a good deal over time. As we have shown, it is not possible fully to satisfy both our criteria at once. But an assets tax would satisfy them more fully than our present tax on unearned incomes.

If such a tax were adopted, it would be essential to try to value assets as physical assets and not to capitalise the expected income from them. To do the latter would be in effect to retain our present tax on unearned incomes. The administrative difficulties of such a scheme would be great, but I think an attempt to overcome them would be well worth while.

(2) I am too impressed by Professor Simons' book to feel happy at allowing capital gains, *as such*, to escape altogether. I should like to see a tax on very marked capital gains, which might be considered as "windfalls", without any compensation for corresponding capital losses. For example, if assets doubled in value over three years this might be considered as a windfall gain. The present time seems particularly favourable, from the standpoint of the Treasury, for introducing a tax on capital gains above a certain exempted percentage. For the values of many assets are depressed owing to the war and the excess profits tax, and are likely to rise when we win the war.

(3) Finally, the present death duties might be abolished and replaced by a tax on the successor: the person who inherits. Such a tax would be progressive according to the total value of his assets, including his inheritance. The present system conflicts with the ability-to-pay criterion. The tax is progressive according to the size of the estate. Hence a rich man inheriting the whole of a small estate may receive more, after tax has been paid, than a poor man inheriting the same gross sum as a small part of a large estate.

The Ricardo Effect

By F. A. v. Hayek

> *Machinery and labour are in constant competition, and the former can frequently not be employed until labour rises.*
> D. RICARDO.

I

When in a recent essay on industrial fluctuations the author introduced " the familiar Ricardian proposition that a rise in wages will encourage capitalists to substitute machinery for labour,"[1] this was done under the illusion that thus an argument he had long employed could be stated in a more readily acceptable form. That illusion has been dispelled by the various comments on that essay;[2] and a re-examination of the earlier literature on the subject has revealed a rather peculiar situation: while the proposition has been supported and used by numerous writers ever since it was first enounced by Ricardo,[3] it seems never to have been adequately expounded. In particular, although it is fundamental to the discussions of interest in the works of Böhm-Bawerk, Wicksell, and Mises, none of these authors develops it at any length. The frequent brief references to it in other general theoretical works in modern times,[4] which seemed to confirm the impression that it was widely accepted, prove on examination to be not only inadequate but often to be based on faulty reasoning. And although it used to be treated as a commonplace in realistic studies of the influence of high wages on the use of machinery, there, too, we search in vain for a reasoned argument.[1] The relatively fullest discussion in recent times is to be found in some German publications.[2] But when in this country a few years ago Professor Hicks made use of the proposition in a chapter of his *Theory of Wages*, Mr. Shove in his review[3] of that work produced what has become the standard reply, that so long as the rate of interest is unchanged a general change in wages will affect the cost of production of the different methods of production in the same proportion (which is undeniable), and that therefore it cannot alter their relative advantages (which does not follow); and Professor Hicks' later withdrawal[4] of the whole chapter in which occurred the passage criticised seemed to imply that he abandoned the contention. Still more recently Mr. Kaldor,[5] in an article to which we shall have to refer later, while admitting the principle, seemed to restrict its significance to rather special conditions.

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[1] *Profits, Interest, and Investment*, 1939; cf. also *The Pure Theory of Capital*, 1941, Chapter XXVII.

[2] Cf. particularly the review of *Profits, Interest, and Investment*, by H. Townsend in the *Economic Journal*, March, 1940, and T. Wilson, " Capital Theory and the Trade Cycle," *Review of Economic Studies*, June, 1940. I have not been able to see C. Welinder, " Hayek och ' Ricardoeffekten '," *Ekonomisk Tidskrift*, March, 1940.

[3] The relevant passages of Ricardo's *Principles* will be found mainly in *Works*, ed. McCulloch, pp. 26 and 241.

[4] E.g., N. G. Pierson, *Principles of Economics*, Vol. I, 1902, pp. 219, 308; G. Cassel, *The Nature and Necessity of Interest*, 1903, p. 116: " Supposing the rate of interest to be constant, the more expensive labour becomes, the greater will be the substitution of waiting for it."; F. A. Fetter, *Economic Principles*, 1915, p. 340; H. R. Seager, *Principles of Economics*, 2nd ed., 1917, pp. 278, 289; R. G. Hawtrey, *The Economic Problem*, 1926, pp. 324 *et seq.*; see also H. G. Hayes, " The Rate of Wages and the Use of Machinery " and C. O. Fisher, " An Issue in Economic Theory: The Rate of Wages and the Use of Machinery," in *American Economic Review*, 1923, a particularly characteristic discussion in which a faulty presentation of the argument by the first author was easily demolished by the second.

The proposition in question is of importance far beyond the special context in which it has been used in recent discussions. It is not surprising that those who completely reject it seem at the same time to be unable to attach any meaning to the conception of a given and limited supply of real capital[6]: because it is through this effect that the scarcity of real capital will make itself ultimately felt, however much the rate of interest may be affected by purely monetary factors, and that the volume of investment must ultimately be adjusted to a level compatible with the demand for consumers' goods. The proposition thus is an essential part of the elementary theory of production. If this is true, the lack of agreement on it would go far to explain the sharp and apparently irreconcilable conflict of economists on the more complex problems of industrial fluctuations, and an attempt at a fuller statement of the argument on which the proposition is based seems to be urgently needed.

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[1] E.g., G. v. Schulze-Gaevernitz, *Der Grossbetrieb*, 1892; J. Schœnhof, *The Economy of High Wages*, 1893, pp. 33, 279; L. Brentano, *Hours and Wages in their Relation to Production*, 1894; and J. A. Hobson, *The Evolution of Modern Capitalism*, 1894, p. 81.

[2] See particularly H. Neisser, "Lohnhöhe und Beschäftigungsgrad im Marktgleichgewicht," *Weltwirtschaftliches Archiv*, Vol. XXXVI, October, 1932; and A. Kähler, *Die Theorie der Arbeiterfreisetzung durch die Maschine*, Leipzig, 1933, pp. 75 *et seq.* I should perhaps add that it is partly due to Professor Neisser that I was confirmed in the belief that the proposition was generally accepted; since when, about the same time as his article appeared, I got (in an article in the same journal) badly mixed up on the point, and it was he who promptly caught me out and orally pointed out to me the confusion.

[3] J. R. Hicks, *The Theory of Wages*, 1932, Chapter IX, and G. F. Shove's review in *Economic Journal*, Vol. XLIII, September, 1933, p. 471.

[4] J. R. Hicks, "Wages and Interest: the Dynamic Problem," *Economic Journal*, Vol. XLV, September, 1935.

[5] N. Kaldor, "Capital Intensity and the Trade Cycle," *Economica*, N.S., Vol. VI, No. 21, February, 1939; cf. also his "Annual Survey of Economic Theory: The Recent Controversy on the Theory of Capital." *Econometrica*, Vol. V, No. 3, July, 1937.

[6] As I have attempted to show elsewhere (*Pure Theory of Capital*, particularly p. 147) the only adequate description of this "supply of capital" is a complete enumeration of the range of possible output streams of different time shapes that can be produced from the existing resources. Which of these different output streams will be produced depends in the first instance on what may be called the "rate of employment" (i.e., the rate at which people will be employed at successive moments of time during the period in question) and on the form that employment will take, factors which in turn depend on final demand, the level of money wages, and the result of these, the relation of money wages to the prices of the products. There will, as a rule, be only one output stream which in its production will generate an income stream of such size and time shape that the part of that income which at any time will be spent on consumers' goods will just equal the cost of the current output of consumers' goods, inclusive of that rate of return on capital in the expectation of which the method of production actually employed has been decided upon.

It was the fatal mistake of Böhm-Bawerk (and to much less an extent of Wicksell) that, although he was quite aware that the existing stock of capital goods was capable of producing more than one single output stream, he attempted to simplify his exposition by identifying the stock of capital goods with a definite quantity of consumers' goods and to represent this in his illustrations by a fixed amount of available money capital. The analysis of the famous final chapter on "The Market for Capital in its Full Development" of the *Positive Theory* makes perfect sense if we remember this simplification, but must seem to have no relevance to anything in the real world to anyone who takes the representation of the supply of capital by a sum of money literally.

Such a statement will be attempted here in terms which should make it as far as possible independent of disputed points of the theory of capital, and without direct application to the problems of industrial fluctuations beyond (1) a general stress on short run rather than long run effects, and (2) concentration on the effect of a fall rather than a rise of wages relatively to product prices, because it is in this form that the principle seems to be particularly relevant for the exploration of industrial crises. In order to separate the various parts of the argument the problem will be approached in stages. The next section will be devoted to an explanation of the concepts used and an exposition of the general principle on assumptions which will enable us to disregard the money rate of interest. After the general principle has thus been established, the concrete ways in which it is likely to affect investment demand will be discussed in Section III. The interplay between the Ricardo Effect and the rate of interest on money loans will be taken up in Section IV and will be discussed first on assumptions concerning the supply of credit which are approximately true of the real world. In Sections V and VI the same problem will be considered on the assumption of a "perfectly elastic supply of credit", which, though highly unrealistic, raises theoretical problems of considerable interest. In a final section will be added a few considerations which have to be taken into account in any attempt at statistical verification of the theorem.

II

The proposition here described as the Ricardo Effect asserts that a general change in wages relatively to the prices of the products will alter the relative profitability of different industries or methods of production which employ labour and capital ("indirect labour") in different proportions. In its original form it asserts that a general rise in wages relatively to the prices of the products will reduce the profitability of the industries or methods employing relatively more capital to a lesser extent than those employing relatively less capital. We are here more particularly concerned with the inverse of this, namely, with the proposition that a general fall in wages relatively to product prices will have the opposite effect.[1]

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[1] As a result of a criticism of this article in the proof-stage by Mr. G. F. Shove, I am no longer so sure that the establishment of the truth of the proposition in the inverse form also proves the correctness of the original proposition.

A general change in the relationships between wages and product prices may be caused by a general change in product prices, by a general change in wages, or by a change in technical knowledge or the physical quantities of other factors available which change the productivity of labour. While any of these changes may serve for our purpose as the independent variable, we must, of course, not treat in the same way changes in the productivity of labour which are the consequence of variations in the proportion between capital and labour employed, since this is the dependent variable of our problem.

The particular kind of change on which we shall here illustrate the proposition will be a general rise in the prices of final products (or consumers' goods, henceforth briefly referred to as "commodities") while money wages are assumed to remain constant (and thus to fall *relatively* to commodity prices). We shall assume this rise of prices to be due to an increase of demand, caused by a growth of incomes earned from producing investment goods, and exceeding the amount beyond which the output of commodities can be readily increased. We shall further assume that entrepreneurs expect commodity prices to remain at least for some considerable time at the new higher level. No assumption will be made concerning any change in the price of capital goods, this being part of our problem.

The assumption of a general rise in the prices of commodities while wages remain unchanged means, of course, that *all* wages fall relatively to commodity prices. It is important to emphasise this because the theorem has often been misunderstood to refer to a situation where only the wages of labour co-operating with machinery change relatively to prices, while the wages used in the production of machinery remain unaffected.[1] And it should be at once admitted that with such a general change in the wage level relatively to final prices, the costs of producing final goods by different methods must, if we assume a uniform rate of interest, be changed in the same proportion. Our contention is that nevertheless the attractiveness of investing in different industries or methods of production will be affected differently.

In order to exclude, for the purpose of the present section, any influence exercised by the money rate of interest, we shall assume for the time being that there is no lending of money of any kind during the period with which we are concerned: entrepreneurs either owning all the capital they employ and being effectively prevented from lending any of it, or being limited by a strict rationing of credit. We shall assume, however, that before the rise in commodity prices occurred, the rates of return on capital had been the same in all the firms. By excluding any consideration of the rate of interest in discussing the effects of the changes in commodity prices we are, for the moment, deliberately avoiding what will later become our main problem. This temporary shelving of the central issue will, however, help us to isolate the more elementary parts of the argument which seem still to need explicit statement.

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[1] While many later authors were confused on this point, Ricardo clearly assumed a general change in wages; the starting point of his brief discussion of the whole problem is the question whether, if wages rose by 10 per cent., "will not machinery rise in price" to the same extent? See *Works*, ed. McCulloch, p. 26.

Our present problem thus is how, with unchanged wages, the rise in commodity prices will affect the current distribution of the funds at the command of the entrepreneurs between expenditure on wages (or investment in " circulating capital ") and expenditure on machinery (investment in " fixed capital "). To avoid complications arising from changes in the prices of raw materials, etc., which I have discussed elsewhere,[1] we can assume that the firms with which we are concerned are all of the type represented by a brickyard on marginal land where the labour employed produces not only all the raw material but also the fuel.

It remains to introduce an unambiguous and, so far as possible, uncontroversial measure of the proportions in which capital and labour are combined in the various firms and possible methods of production. For the purpose in hand, the most convenient measure which has also the advantage of being familiar to business men, is the concept of the " rate of turnover ", applied either to the whole or to any part of the capital of a firm. That some firms can expect to " turn over " their capital (i.e. to re-invest out of current receipts an amount equal to their capital) once in two months, while others can expect to do so only once in five or even ten years, and that this rate of turnover depends, at least in part,[2] on the nature of the business and the character of the methods adopted is a familiar fact. Similarly, it will also be true that within any given firm some parts of its assets will be " turned over ", or wholly turned into cash and re-invested, twelve times a year, while others may be thus completely amortised and replaced only once in twenty years. The " rate of turnover " expresses (as an integer or fraction) the number of times the capital is turned over in the course of one year. As it will be convenient to have an adjective describing firms or methods with a relatively high or relatively low rate of turnover, we shall, for reasons which will be obvious, occasionally employ the technical term " more capitalistic " for firms or methods with a relatively low rate of turnover, and " less capitalistic " for firms or methods with a relatively high method of turnover.

The concept of the rate of turnover of capital provides a specially useful starting point for our discussion, because changes in the wage-price relationship will evidently in the first instance affect the gain made each time the product of a given expenditure can be sold. So long as the prices of commodities remain high relatively to costs, the difference will be a source of a given proportional profit on the capital every time the capital is turned over. And any given rise in product prices relatively to costs will enable entrepreneurs to make higher profits *per unit of time* from their given capital according as they are able to turn over their capital more frequently.

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[1] *Profits, Interest, and Investment*, pp. 29 *et seq.*

[2] The rate of turnover depends, of course, not only on the nature of the business and on the technical methods adopted, but also (apart from the " state of trade ") on the skill and success of the entrepreneur. The entrepreneur who in the same trade and with the same technical methods can make a given amount of capital go further than his marginal colleague will unquestionably derive from this skill a differential profit; but this does not alter the fact, to be discussed presently, that entrepreneurs of the same skill, in different trades and with different technical methods, will have to earn different profit margins on each turnover in order to earn the same rate of return on their capital. It is well known, e.g., that a second-hand bookseller, because his rate of turnover is very much smaller than that of a dealer in new books, will have to earn a much larger percentage on each book sold than the latter.

In the situation of long period equilibrium which we assume to have existed before prices rose, a situation in which the rate of return on capital will be the same for all firms, the relation between the rate of turnover and the proportional gain on each turnover is very simple. In order to avoid the ambiguous term profit, we shall henceforth employ the following terms: (1) The per annum net percentage return on the whole capital of a firm (or on any part of it for which we find it necessary to compute it separately), net of "wages of management" and of risk premium, we shall designate as the "internal rate of return."[1] In the position of long term equilibrium to which we have just referred, these internal rates of return will be the same for all firms and each part of the capital of any firm. (2) The proportional gain on each sale, and therefore on the capital on each turnover, expressed per cent., we shall designate as the "profit margin". When it is remembered that the rate of turnover expresses the number of times total sales (or rather the costs of the products sold in a year) exceed the value of the capital of the firm, it is clear that, if the internal rate of return is to be uniform for all firms, profit margins will have to vary inversely with the rates of turnover. Thus, if we call the internal rate of return I, the rate of turnover T, and the profit margin M, the relationship will be represented by $I = TM$ or $M = \frac{I}{T}$.

If, e.g., the internal rate is 6 per cent., the profit margin of a firm turning over its capital six times a year will have to be 1 per cent., while a firm turning over its capital only once in two years will have to earn 12 per cent. on all sales, and a firm turning over its capital only once in every ten years will have to earn a profit margin of 60 per cent.[2]

How will these internal rates of return of the different firms be affected by a general rise of prices of, say, 5 per cent.? As such a rise means a proportional increase of the receipts from the sale of any quantity of commodities, the cost of production of which is unchanged, it will mean a clear addition to the profit margins earned on each turnover equal to the amount of the rise. For the three firms which we have just considered by way of illustration, the first (with an annual rate of turnover $T = 6$) will find its profit margin increased from 1 to 6 per cent.; the second (with $T = 1$) from 6 to 11 per cent.; and the third (with $T = \frac{1}{10}$) from 60 to 65 per cent. Multiplying these profit margins by the corresponding rates of turnover we obtain the new internal rates of return of $6 \times 6 = 36$ per cent. for the first, $1 \times 11 = 11$ per cent. for the second, and $\frac{1}{10} \times 65 = 6.5$ per cent. for the third firm.[1]

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[1] The term "internal rate of return" is borrowed from Mr. K. E. Boulding, "The Theory of a Single Investment," *Quarterly Journal of Economics*, Vol. XLIX, May, 1935, pp. 478 *et seq.* Its German equivalent (more precisely the term "innerer Zinssatz") has been used earlier, I believe, in discussions of the effects of credit rationing, but I cannot now recollect when or by whom.

[2] To simplify calculations, compound interest is disregarded throughout.

In the circumstances assumed these differences of the internal rates of return of the different firms cannot, in the short run, bring about any change in the capital at their disposal (beyond any re-investment of profits)—although the effect these differences would have in the real world on the distribution of capital between the firms will be readily seen. Let us therefore turn from the differences between the effects on the return of the different firms to the differences between the effects of the same change on the rate of return on the different parts of the capital of any one firm. The concept of separate and ascertainable rates of turnover of, and rates of return on, different parts of the capital of any firm (certainly known, although probably never precisely determined in practice) depends on the possibility of ascertaining the marginal contribution to the product of the different parts of the capital; and this, in turn, depends in the familiar manner on the possibility of varying the proportions in which the different forms of capital are combined. We shall in the next section explain why we think that in the relevant sense this variability is fairly high, even in the short run. For the present we shall proceed on the assumption that this is so and that we are consequently in a position to determine the rate of turnover as well as the marginal product of, and therefore the profit margin earned on, any part of the capital of the firms.[2]

We can use for the purpose of this analysis the same numerical illustration which we have just used in connection with different firms: i.e. we can assume that for the major component parts of the capital of the particular firm which we now consider the rates of turnover are 6 for the sums invested in current wages, 1 for the operating parts of the machine tools, etc., and $\frac{1}{10}$ for the heavier machinery, buildings, etc. We shall again assume that after a uniform internal rate of return of 6 per cent. had been established, product prices rise by 5 per cent., and that in consequence the internal rates of return earned on the different kinds of capital rise as before to 36 per cent., 11 per cent., and 6.5 per cent. respectively. This can clearly be only a temporary position if the proportions between the forms of capital with different rates of turnover can be varied. It will now pay to redistribute current outlay so as to increase investment in capital with a high rate of turnover and to reduce investment in capital with a low rate of turnover. And this change will be continued till the expected rates of return are once more the same on all forms of investment, and current investment will continue in this new form so long as the same conditions prevail, till ultimately all the capital of the firm has been adapted to the new conditions. As a result a new and once more uniform internal rate of return for the firm will be established somewhere between the extremes of 6.5 and 36 per cent., and at this new rate of return the total yield that can be earned from the limited resources of the firm (augmented only by any reinvested extra profits) will have reached its maximum.

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[1] These figures show, of course, the impact effect of the rise of prices on the profits of the different firms, and will be changed by the adjustments in the composition of their capital. which we are going to discuss.

[2] Dr. Hawtrey, in his review of my *Pure Theory of Capital* (*Economic Journal*, June–September, 1941, p. 286) attempts to draw a distinction between the measurement of the yield of any investment in terms of "net cost saving capacity" and in terms of its marginal contribution to final output and asserts that while the former will be regularly possible, the latter will be possible only in exceptional cases. But these two approaches are surely merely different aspects of the same thing and neither seems to be more likely to be useful than the other: the difference between them is merely that in the first instance we assume the proportions between the different factors to be so adjusted as to leave output constant, while in the second we assume the quantity of all the resources except one to be constant and observe the effects of the change in the one on the quantity of output. Or, in other words, the first approach is in terms of movements along an equi-product curve and changes in the marginal rates of substitution between the factors, while the second is in terms of movements parallel to the axes of the same diagram and of the consequent changes in the marginal product.

Although once more uniform for any one firm, the internal rates of return will however remain different for different industries and (to a lesser extent) different firms in the same industry. Where the internal rate will be fixed for any one firm will depend on the original composition of the capital of the firm and on the degree to which costs will be raised by any transition to less capitalistic methods. But, generally speaking, the rates of return will remain higher in the industries which, because of the nature of their product, need relatively less capital, and lower in the industries which need relatively more capital, although both kinds of industries will tend to change so far as possible to less capitalistic methods of production.[1]

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[1] It has been argued (by Mr. T. Wilson in the article quoted before) that the numerical illustrations I have again employed in the preceding argument are misleading because under modern conditions the practical choice is not between capital lasting a few months and other capital lasting one or two years, but between various kinds of machinery all lasting many years, and that as between them the difference in the rates of return caused by changes in product prices is so small as to be negligible. It is perfectly true that, e.g., in our illustration, where the return on capital with a rate of turnover of $\frac{1}{10}$ is raised from 6 to 6.5 per cent. the rate of return on capital with a rate of turnover of $\frac{1}{12}$ would be raised from 6 to 6.417 per cent., a difference which is indeed insignificant. But this objection entirely misses the point of the argument. It is based on a confusion, due, presumably, to the verbal similarity of two different statements. It is true that the new, more durable (or more labour-saving) machine will replace a less durable or less labour-saving machine. But it does so in a sense different from that in which it can be said that the additional capital displaces other factors. The extra capital, the extra amount that is invested in the new, more expensive (because more durable or more labour-saving) machine, above what would be necessary to replace the old machine by an identical one, is not

III

Before going further it will be advisable to consider briefly the probable quantitative significance in the short run of the phenomenon considered. The belief has been expressed, and appears to be widely held, that, although the argument may be correct, the practical importance of the effect in question could only be small. And although it would be convenient to postpone these considerations of a more concrete kind till the theoretical argument is complete, it is probably as well to forestall a feeling of impatience on the part of the reader who may feel that all this lengthy argument is wasted on a point the practical significance of which, even if proved, would be negligible.

This widely-held belief seems, however, to be based on a misconception. Of course the proportion in which fixed capital and circulating capital (or more and less durable or labour-saving machinery) are used in production can only be changed gradually and slowly over a long period of time. But this is not the point. We are not interested in the proportions between the existing *stocks* of fixed capital and circulating capital, but in the relative rates at which firms will spend their current outlay on renewing (or adding to) the two kinds of capital assets. And here both common experience and general considerations suggest that this proportion is highly variable in the short run.

The mistaken impression is probably caused by the kind of illustrations of the transition from less to more capitalistic methods commonly used in text-books and describing alternative positions of long-term equilibrium. The familiar instances of "changes in the method of production" through replacement of all machines by those of another kind, of less durable by more durable, of less labour-saving by more labour-saving machinery, or of processes which are altogether shorter by processes which are altogether longer, stress an aspect which would indeed seem to be relatively unimportant in

destined to replace the old machine. There would be no point in this. It is destined to save further costs, to reduce the amount of other factors required, and it is with the return on capital invested in these other factors for which the extra capital is substituted, with which its return must be compared. Slightly simplifying we can say that the extra capital invested in the machine is used to displace more *labour* by making the machine more durable, with the result that the additional investment in the machine will displace more labour than would have been true of the amounts invested in less durable machinery (because, at any positive rate of interest, it will be profitable to make machines more durable only if their life is increased more than in proportion to the extra expenditure); or that it is used to make the machine more labour-saving in which case it is even more evident that the additional capital is substituted not for other machines but for current labour. By comparing (in the illustration to which Mr. Wilson objected) the effects of a price rise on a two years' investment with that on investments for a few months, I was understating my case, and what appeared to be true on these assumptions must be *a fortiori* true of the more realistic situations where machinery that will last ten or even twenty years is introduced to save current labour.

It remains true, of course, that if we compute the rate of turnover (or the "average period of investment") and the rate of return for the whole of the capital of a firm, the changes in either will be small. But the point is precisely that at any moment the decision has *not* to be made for the whole of the capital and that the alternative gains to be made on the sums currently to be reinvested will differ very considerably, absolutely, as well as expressed as percentages of these amounts currently to be reinvested.

the short run. To realise how the same tendency operates no less strongly in the short run we must overcome our prepossession with the "comparative statics" of the text-book and try to think more realistically of the concrete decision which entrepreneurs will continuously have to make.

Within limited space we can illustrate this only by selected examples. But they will, I hope, show the width of the range of variations possible in the very short run.

We have to think of entrepreneurs equipped at any given moment with a given stock of durable machinery of which only a small part needs replacement during any short period of time. If conditions had remained what they had been, they would have continued period after period to invest their earned amortisation quotas in machinery of the same kind. But they will do so merely because this would be the most profitable method of using their funds, and we must not assume that they will continue to do so after conditions have changed. Particularly when demand increases there will be any number of possible ways of increasing output other than by multiplying machinery of the kind they have been using before. And if they cannot borrow so as to bring their internal rate down to the former level, some of these will appear more profitable than those used before.

There will be mainly two kinds of changes which will now appear advantageous: an entrepreneur may use his existing machinery more intensively (i.e. with more labour)—employing for this purpose part of the funds which would have otherwise been invested to replace the machinery by new machines of the same kind—or he may replace those machines that wear out by a larger number of cheaper ones. Both of these methods will probably be resorted to, although the first is probably the more important one.

The obvious methods of quickly increasing output as commodity prices rise is to work overtime, to introduce double or treble shifts, to provide extra assistance to relieve the workers on the existing machines from ancillary operations, etc., etc. This will normally raise labour costs per unit of output and this fact will have prevented these devices from being used before prices had risen. But if the adoption of any of these methods increases marginal labour cost per unit of output by, say, 4 per cent.,[1] this would, with a 5 per cent. rise in prices, still leave an extra profit of 1 per cent. which, with a rate of turnover of 6, would make the internal rate of return on this form of investment still 12 per cent. compared with the 6.5 per cent. on the machine with a rate of turnover of $\frac{1}{10}$. This more expensive method of production will therefore now become the one through which, with the limited resources at the disposal of the entrepreneur, the largest profits can be realised; and the labour co-operating with the machinery will be increased till the fall of the return on funds invested in more labour and the rise of returns on funds invested in machines make the two rates of return once more equal at an intermediate figure.

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[1] If it be objected that the increase of costs which we assumed to be caused by the adoption of overtime or similar devices is improbably small, this would merely mean that the very small rise of prices of five per cent. which we have assumed, would not have this particular effect and that it would require a rise of, say, 20 or 25 per cent., to bring it about.

The kinds of changes in the machinery used which have to be taken into account even in the short run will be equally numerous and will also all have the effect of raising marginal costs. There will, in the first instance, be the possibility of less perfect maintenance and attention, makeshift instead of thorough repairs, shorter or fewer periods of laying off for inspection and overhaul, which will reduce the efficiency and shorten the life of the existing machinery, but may well be worth while if current output can thus be increased. There will be, secondly, the possibility of outright non-renewal, not, of course, of essential parts of the equipment, but of the many auxiliary labour-saving devices such as automatic feeders and other gadgets performing operations which can also be done by hand. Thirdly, there will be the possibility of using obsolete or second-hand machines instead of new ones. Many older factories have a certain amount of such old machinery for temporary use to meet peak-time demands or in an emergency, for which it would not pay to keep a new machine in reserve. And there exists in many branches a supply of second-hand machinery which can be used in the same way. Fourthly, and lastly, there will be the possibility of replacing those machines that wear out by new but cheaper and less efficient ones. So long as the internal rate of return of any firm remains above what it has been before, it may well be profitable to buy two less efficient machines at the price of one more efficient one, if the two less efficient machines enable the firm, though with the co-operation of much more labour, to increase output more than with the more efficient one.

If we consider the effect of all these possible changes, *not* on the proportion in which the stock of capital of any firm is composed of different parts, but on the *rates* at which its current outlay is *spent* on different kinds of resources, or on the *proportion* in which total outlay is *distributed* between fixed and circulating capital, it seems to be clear that in consequence of a general change in commodity prices, very large changes in the latter magnitudes may be brought about in a comparatively short time. In extreme cases it may even be profitable for entrepreneurs temporarily to discontinue all demand for machinery and yet for a considerable period greatly to increase output. But while this extreme result may not be probable, it does not seem unlikely that the demand for certain kinds of new equipment will be absolutely reduced. This would seem to be likely particularly where, as is true in the case of buildings and most heavy machinery, the equipment has to be made to order and large sums will have to be locked up in it by the buyer during the period of production without bringing any current yield; the same would seem to be true wherever a gradual transition to some new (e.g. more labour-saving) but more expensive kind of machinery has been under way, which will now be stopped; and generally wherever the change in the methods of production adopted will involve a change from equipment made by one group of people to that made by another group of people.[1] In so far as any labour is specific to the production of the kind of equipment, the demand for which now decreases or ceases entirely, the consequence of the rise in final demand will thus be unemployment in the capital goods industries.

IV

We have now to introduce the possibility of borrowing money at rates of interest determined by the market and not necessarily changed in response to an increase in the demand for funds. In the present section we shall consider how far this modifies the conclusions so far arrived at if we make assumptions which in the most important respects approximately correspond to conditions in the real world and which will therefore enable us to judge what the practical significance of our conclusions is likely to be. The theoretically very interesting but practically irrelevant case of a " perfectly elastic supply of credit " will be deferred till the next section.

The sharp distinction between the two cases and the order of treatment is indicated by the frequent but misleading application to this problem of the category of " perfect competition "; this concept is quite inappropriate to it, simply because successive (additional) loans to the same borrower will never represent the " same commodity " in the sense in which the term is used in the theory of competition. While in a commodity market " perfect competition " means that any single buyer can buy at the given market price any quantity he likes, it would, of course, be absurd to assume that even in the most perfectly competitive money market every borrower (or, for that matter, any borrower) can at the given rate of interest borrow any amount he likes. This is precluded by the fact that in given circumstances the security a borrower has to offer is not as good for a large amount as for a small one. In consequence, every prospective borrower will have to face an upward sloping supply curve of credit—or, rather, not a continuous supply curve, but an upward stepped " curve ", showing that the rate of interest, while constant within certain limits, will go up by distinct steps whenever one of the limits is reached up to which he can borrow at a given rate.

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[1] It seems that the term " structure of production," which I introduced in *Prices and Production* to describe the distribution of *current* labour between the different " stages of production " has sometimes been interpreted in a materialistic sense which supported the misunderstanding that the " changes in the methods of production " I was discussing implied an instantaneous change in the machines actually used. But the " structure of production " in the sense in which I used the term, can, of course, change fundamentally without any change in the equipment actually used; this latter change will come about only gradually as a consequence of the change in the former; and the most radical change of this sort would indeed be the entire cessation of the production of machines, although the people might yet go on for a long time using the same machines in the production of consumers' goods.

The most important, though not the sole, factor limiting the borrowing capacity of a firm at any given rate of interest will be the size of the capital owned by it. Bankers, as a rule, will not be willing to lend to any one firm more than a given proportion of its own capital and take very good care that no firm borrows at the same time from more than one bank ; and beyond this limit the firm will be able to obtain funds only at a higher rate of interest, or, what comes to the same thing, on more onerous conditions of some other kind. This limitation of the amount of funds any firm can raise to increase its output will be further strengthened where banks provide loans only for investment in circulating capital and effectively refuse to provide funds for the investment in fixed capital. The general fact we have to remember in this connection is that, in the existing institutional framework, lending (in the strict sense of the word), and particularly short-term lending, will secure mobility of capital only to a limited extent, and that, in a world where risk is ever present, it will by itself not be sufficient to bring about an equalisation of the rates of return on capital invested in different firms or completely to adjust these rates to a given market rate of interest. For this, in addition to lending, transfers of capital by way of full participation in the risk of the business, i.e. changes in the share capital or what we may quite generally describe as the " own capital " (as distinguished from the borrowed capital) of the firms will be necessary. But this latter process is necessarily much slower than the provision of additional bank loans, and it will therefore frequently be true that in the short run most firms will not be able to raise as much capital as they could profitably use, or that they will be able to do so only at rates much higher than the " market rate."

This is not to say that the maximum a firm will be able to borrow at a given rate of interest will be rigidly fixed in proportion to its own capital. The director of a firm who can convince his bank manager that he has an exceptional opportunity of making large profits on additional capital and thus can provide a large margin of safety in case his optimism should prove not to be quite justified, will be able to borrow proportionally more than another. And in general when prospects are good all firms may be able to borrow more in proportion to their own capital than when prospects are poor.[1] The stepped supply " curves " of credit which all firms face will be shifted to the right as general prospects get better (and to the left when prospects get worse) and such sideways shifts of the supply curves will frequently act, and often be deliberately used, in exactly the same way as an outright change in the rate of interest (i.e. as a raising or lowering of the whole curve).

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[1] It should be noted that the limit thus imposed on the borrowing capacity of the firms will be a sliding limit, fixed only in the short run, but rising gradually as, in consequence of each addition to the volume of credits already granted, incomes and final demand and thereby the prospects of profits rise. In other words, it will limit merely the rate of expansion of credit, but may not prevent a continuous, progressive and (if for the purpose of estimating the security of the borrower the value of his assets is written up with rising prices) even limitless expansion of credit.

But although any general increase in expected profits is likely to increase the amounts firms can borrow, it will in many instances increase the amounts they would like to borrow at the current rates of interest still more and thus bring firms up to the limit beyond which they can raise capital only at higher costs. Though there will be, at the ruling rate of interest, an unsatisfied demand, this demand will not be "effective" demand, because it will not fall within the categories to which the ruling rates apply and these rates will therefore remain unchanged. The situation is similar to that caused by credit rationing, although it will arise, without the intervention of authority or a monopolist, merely as a result of the views the banks hold about the "credit-worthiness" of the borrowers.

There is no need to explain at any length that whenever the amounts people would like to borrow at the current rate of interest are larger than the amounts they can obtain at that rate, it will be these *amounts* and not the ruling market rate which will determine the internal rates of return of the different firms. As in the situation discussed in the last section these internal rates will be different for different firms according to the circumstances then enumerated (to which we must now add the limitations on the borrowing facilities of any particular firm), and the investment of each firm will be governed by its own internal rate, which may be very much higher than the market rate, which may not have changed at all. And the rise in internal rates would lead to a general change to less capitalistic methods of production, different in extent according as the internal rate has changed in the different firms.

There remains, however, the question whether to the extent that the firms are able to procure additional credits this will reduce the degree to which their internal rates will rise, and therefore the degree to which they will change to less capitalistic methods of production, compared with the case where no additional credit at all was available. The problem which arises here is the same as that which we intend to consider in its more general form in the next section, since, if our proposition holds true even when the supply of credit is completely elastic, it must apply still more in the present case. We can, therefore, immediately proceed to this "stronger" case.

V

The assumption that the supply of credit at a given rate of interest is perfectly elastic is not only unrealistic but, when we contemplate its implications, perfectly fantastic; and it makes the analysis rather complicated. But, as it brings us face to face with a fundamental theoretical problem, this is well worth undertaking. It raises in its purest form the question of the relationship between the monetary and the real factors affecting the relative profitability of different methods of production.

The contention that if the supply of credit is perfectly elastic it must be the money rate of interest which will determine which forms of investment are most profitable may be based on either of two assertions which ought to be clearly distinguished: it may be asserted that in this case the cost/price relations (or the relation between wages and commodity prices) must necessarily be so adjusted by either a change in wages or a change in commodity prices as to make the difference correspond to the money rate of interest; or it may be asserted that even when this does not happen and wages remain, e.g., too low relatively to commodity prices, it will still be the money rate of interest and not the cost price relationship that will govern the form of investment.

With regard to both these arguments, but particularly with regard to the first, it is important to remember that the situation which we consider is eminently *not* one of equilibrium but one in which the causes of continuous and cumulative change are inherent. It is indeed the classical instance of a cumulative process with which we are dealing: the perfectly elastic supply of credit at a rate of interest lower than the internal rate of all or most of the firms will be the cause of continuous changes of prices and money incomes where each change makes further changes necessary. There is no point in saying with respect to such a situation that " in equilibrium there must " exist such and such a relationship, because it necessarily follows from the assumptions that the relationship between at least some prices must be out of equilibrium. This is important particularly with reference to the two propositions: 1st, that prices must be equal to marginal costs, and, 2nd, that the prices of the factors must be equal to the expected price of their marginal product discounted at the rate of interest at which credit can be freely obtained. All we need to say with respect to the first proposition is that, except in a very special and for our purpose irrelevant sense,[1] it is just not true in the very short run, although a dogmatic belief that prices must always be equal to marginal costs in the relevant sense is probably responsible for a great many confusions in this field. The second proposition is the one with which we are here more directly concerned.

The belief that, if the supply of money at a given rate of interest is perfectly elastic while investment demand is inelastic, the former will uniquely determine the rate of return at which supply and demand will be equal, is derived by analogy from the general rule that if either the quantity demanded or the quantity supplied of anything is completely elastic at a given price, it follows necessarily that this will be the price. But while this statement is true enough when we discuss demand and supply in " real " terms, it neglects an essential difference of the present case where the "price" in question is the relationship between the prices of two groups of goods (labour and commodities), while the supply which is infinitely elastic is not that of one of the two goods but merely of the money that is in the first instance to be spent on one of the two goods; it neglects that any increase of money expenditure on the one kind of good is bound to cause an increase of money expenditure on the other kind of good.

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[1] The proposition can be made true in the shortest of short runs if we include in marginal costs all costs (including the personal effort of the entrepreneur) of increasing output during the short period in question—i.e., if we include in marginal costs the costs of increasing output at a certain rate. But if we do so, marginal costs are no longer uniquely correlated with the volume of output and we have to consider separate marginal cost curves for each rate at which output is increased, becoming steeper as we assume a faster rate of increase till, for a strictly instantaneous increase of output, the marginal cost curve becomes perpendicular.

When it was said before that we are dealing with a position of disequilibrium, this meant precisely that we had to deal with two sets of forces tending to fix the same price (or rather the same relationship between two groups of prices) at different figures. On the one hand we have a given output of consumers' goods (only slowly variable) and a given propensity of the people to spend a certain proportion of their income on consumers' goods, which together would for each volume of employment (and therefore of total income) determine a definite ratio between the prices of commodities and the prices of all factors; and, on the other hand, we have an infinitely elastic supply of money which tends to determine the prices of factors in a certain fixed relation to the prices of the products which is different from that determined by the first set of factors.

It is not to be denied, of course, that through changes in the money stream the relation between the prices of goods as determined by the real factors can be very considerably modified. The problem is merely whether there is no limit to the extent to which, and the period of time for which, the price structure as determined by the " real " factors can be thus distorted, or whether the fact that the extra money which has first raised one group of prices will soon work round to affect the other group of prices in the same direction does not set a limit to the possible degree of distortion. The question is rather similar to that whether by pouring a liquid fast enough into one side of a vessel we can raise the level at that side above that of the rest to any extent we desire. How far we shall be able to raise the level of one part above that of the rest will clearly depend on how fluid or viscid the liquid is: we shall be able to raise it more if the liquid is syrup or glue than when it is water. But in no case shall we be at liberty to raise the surface in one part of the vessel above the rest to any extent we like.

Just as the viscosity of the liquid determines the extent to which any part of its surface can be raised above the rest, so the speed at which an increase of incomes leads to an increase in the demand for consumers' goods limits the extent to which by spending more money on the factors of production we can raise their prices relatively to those of the products.[1] The problem arises most sharply when we assume that the money rate is arbitrarily lowered to a very low figure in a new country with little capital and a very high "marginal efficiency of capital". If the proposition we are considering were true at all, it would have to hold in this case also, i.e., the availability of an unlimited quantity of money at the low rate of interest would bring it about that wages would be driven up to the discounted value—not merely of the present marginal product of labour, but of the marginal product labour could be expected to produce after the machinery had been installed which it would be profitable to install at the low rate of interest. The aggregate value of the services of labour at that real wage might be very considerably larger than the total current output of consumers' goods and certainly very much larger than the whole current output of labour. The effect of this must be that the demand for consumers' goods and their prices would rise accordingly. If this rise of prices stimulated entrepreneurs to borrow and invest still more, this would only make prices rise still further, and the faster entrepreneurs expected prices to rise, the more they would necessarily speed up this price rise beyond their expectations. Although they might succeed at times in driving wages up to the discounted value of the *expected* price of the marginal product of labour, they could not possibly, whatever their effort, actually raise real wages to the figure corresponding to the low rate of interest, because the stuff to provide this real income would just not be there.

In the situation to which we have to apply these considerations, such as will exist in a modern society in the late stages of a boom, the position will be different only in degree. It still remains true that entrepreneurs, by offering higher money wages, cannot effectively raise real wages to the level which would correspond to the low money rate of interest, because the more they raise money wages, the more the prices of commodities will rise.[2] And in this case, too, the limiting factor is simply that the consumers' goods are not there and that, so long as all investment takes highly capitalistic forms, every increase in employment adds only a fraction of its value to the output of consumers' goods. This brings us to the second hard fact which dominates the situation we are considering: that in this situation there will not be labour enough available to increase at the same time the current output of consumers' goods and to push investment to the limit indicated by the rate of interest. So long as unused reserves of labour are available there is, as we shall presently see, indeed no reason why the entrepreneurs should not use the unlimited funds to do both: to increase the output of consumption goods for the near future by the expensive but quick methods, and provide for cheaper production by investing on a large scale. And this is the reason why in the early stage of a boom the money rate of interest will control the situation. But although this would mean that in these circumstances the low rate of interest was effective so far as the volume of investment was concerned, it would still not mean that once consumers' goods prices began to rise, real wages could be maintained by proportional adjustments in the money wages.

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[1] The economic equilibrium differs, of course, from our hydrostatic simile by the fact that the equilibrium position between the prices is not constant but will be affected by changes in the real quantities of goods available. These real changes, however, will only strengthen the tendency, because they will necessarily work in a direction opposite from the monetary factors: in our case their effect will be to increase the proportion of people engaged in producing things other than consumers' goods to the available output of consumers' goods and thus to increase the difference between wages and commodity prices which will establish itself as soon as the flow of new money ceases.

[2] This is, of course, not to say that the share of labour as a whole in the real income of society is rigidly fixed. An increase in the sum of money wages will enable labour to encroach on the real income of the rentier class. But the rise in money wages necessary to give an increased number of people the same real income per head at the expense of the people with fixed money incomes would have to be very large indeed—so large that it is not likely to be offered by entrepreneurs till they have come to expect a galloping inflation. In other words, we do, of course, not wish to deny that there will be some forced saving largely at the expense of the rentier class; what we deny is merely that it is likely that by forced saving it will be possible to give an ever increasing number of men employed in producing investment goods a constant wage in terms of consumers' goods. Perhaps it should also be added that the argument of the text does *not* imply that *all* the additional money income paid out in wages is promptly spent on consumers' goods, but only that this is true of a substantial part of it. See on this *Profits, Interest, and Investment*, pp. 52 *et seq.*

VI

That in the circumstances considered it will sooner or later become inevitable that real wages should fall, and investment expenditure be reduced, will be evident if we consider for a moment the paradoxical results that would follow if things worked as appears to be assumed by the contrary view. The increase in the prices of commodities, with unlimited amounts of money available at a fixed rate of interest, would lead to an increase of investment expenditure and of real investment, which, since no reserves of labour are available, could take place only at the expense of the output of consumers' goods in the near future. The consequent increase of money incomes and of final demand, coupled with the decrease in the output of consumers' goods, would cause a further rise in their prices relatively to wages. This further rise in the prices of consumers' goods would, according to that view, bring about a further increase of investment at the expense of the output of consumers' goods, and so on, presumably till there are no people left producing consumers' goods and everybody is engaged in providing machinery destined to produce consumers' goods in some distant future when the men will all have died of starvation in the interval. While some tendency in this direction probably exists during the earlier part of a boom, it hardly needs any superstitious belief in the self-righting forces of the economic system to suspect that, some time before that extreme result is produced, counter-forces will operate to check such a development. This brings us to the second version of the argument according to which it must be the money rate of interest which rules the roost.

This version, which admits that wages may remain relatively too low compared with the rate of interest, but insists that in spite of this, if the supply of money is perfectly elastic, it will be the rate of interest and not the level of wages which will govern the form of investment, is represented mainly by Mr. N. Kaldor and Mr. T. Wilson.[1] These two writers, however, as we shall try to show, so much simplify their task that they do not prove what they mean to demonstrate. All they do prove, in a quite unnecessarily elaborate manner, is that, so long as an unlimited amount of money can be obtained at the given rate of interest, it will depend solely on the rate of interest which method will bring the highest *current* profit above *current* costs *after* the equipment appropriate to that method has been procured. This is no more than another version of the truism which we have emphasised from the beginning that, so long as the rate of interest remains constant, a change in real wages cannot alter the relative costs of the different methods of production. What Mr. Kaldor and Mr. Wilson completely disregard is that in comparing the profits obtained from producing with different methods they are comparing methods employing different amounts of capital without counting in any way the cost of creating the extra real capital required for the one of the two methods. They do this by omitting to give any attention to what will happen during the period of transition before the new equipment is available. Whether this equipment will be ever available will depend, however, precisely on what happens during this interval. The problem is not answered by the statement that, if we adopt a certain course, the excess of current receipts over current outlay will be largest from a certain future date onwards, if we are not also told what happens between now and that future date. In choosing between the two alternative methods we cannot decide merely on the basis of what the position would be after *some* new long term equilibrium has been established, but we must also consider what will happen between now and then, because it will depend on this *which* long term equilibrium will be established. What the procedure of Mr. Kaldor and Mr. Wilson amounts to is to leave out from their data the real factors which determine the supply of capital, and to assume that the quantity of capital will in the long run necessarily adjust itself so as to bring its " marginal efficiency " to the level of a rate of interest determined solely by monetary factors.

Speaking more concretely, Mr. Kaldor and Mr. Wilson assume that, if only the funds are available, it will, in the circumstances assumed, necessarily be most profitable to meet an increased demand for the product by increasing equipment in proportion to the increase in the amount of the product that can be sold at any given price, although in this way it will as a rule be possible to catch up with increased demand only after some considerable interval. Only if

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[1] N. Kaldor, " Capital Intensity and the Trade Cycle," ECONOMICA, February, 1939, and T. Wilson, " Capital Theory and the Trade Cycle," *Review of Economic Studies*, June, 1940.

(and to the extent that) we can assume the extra equipment needed to be waiting in the shops ready to be bought and instantaneously to be installed would no such interval occur. This assumption (which amounts to presupposing that all the real capital required for an expansion is already in existence) is evidently one which might be true for any one firm, but which will not be true when all firms are simultaneously in the same position. In the situation with which we are concerned the additional equipment and still more the output produced by it will be available only after considerable delay. And in the interval till this output is available profits which might have been made by quicker methods will be lost and ought to be counted as part of the cost of the production for the more distant future.

To this it will no doubt be answered that there is no reason why the entrepreneurs should not do both: provide for the output in the near future by the quick but expensive methods *and* provide for the more distant future by ordering more machinery. But this brings us up to the fundamental issue whether the amount of real resources, and particularly of labour, will be sufficient to make both possible at the same time. Or, in other words, the question arises which it is now fashionable to disregard in discussion of these problems, whether an unlimited supply of funds secures an equally unlimited supply of real resources. We have already seen that, in the kind of situation with which we are concerned, this is not likely to be the case.

It is instructive, however, to examine a little more closely how some economists manage to gloss over this difficulty and thereby apparently succeed in eliminating the given supply of capital from the relevant data of the problem. Mr. Kaldor's treatment of the question in the article referred to is in this respect most illuminating. He explicitly claims to deal with all the cases where the output of individual firms is limited by "falling demand curves for the products *and/or rising supply curves for its factors*"[1] as the only possible alternative to a limitation by an inelastic supply of credit. But when he comes to discuss the case he assumes, and finally even introduces in a footnote, the explicit assumption that "*the elasticity of supply of factors, to the individual firm, is infinite*".[2] But although he has thus in fact confined his proof to only part of the group of cases for which he has originally undertaken to provide it, he proceeds as if he had proved it for all and continues to treat his original alternative (inelastic supply of credit *or* falling demand curves for the product and/or rising supply curves for the factors) as corresponding to the distinction between situations where either only the rate of wages or only the rate of interest determines the methods of production that will be profitable.

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[1] Loc. cit., p. 46 (our italics).

[2] *Ibid.*, p. 50, footnote 4. The assumption is implied in the whole discussion on this and the preceding page, since only if unlimited amounts of labour are available at the given price is the "supply curve of capital horizontal" in the real sense in which the term capital is there used.

Mr. Kaldor's omission to face the effects of limitation in the supply of labour is so significant because it is through the rise in the supply price of labour that the shortage of real resources available for investment (caused by the competing demand of the producers of consumers' goods) makes itself felt. His conclusion follows solely from the assumption that, and is true only if, the elasticity of the supply of labour (and other factors) is infinite. When this is true there is indeed no reason why entrepreneurs should not succeed in using the unlimited money funds to increase output quickly by costly methods and at the same time to make arrangements for a more economical production of a larger output at a later date. So long as unused reserves of labour are available at an unchanged price, unlimited funds mean unlimited control over resources. But this is not the condition which is relevant for the position of full employment that will prevail near the top of a boom.

We shall see the problem involved more clearly if for a moment we assume that each firm represents a completely integrated process of production, that is, that not only the production of the final commodity and of all the various raw materials, etc., used, but also that of all machinery required for the production of that output is produced within the firm. In the circumstances we are considering each of these integrated firms would be able to attract additional labour only by offering higher wages; and although the relatively less capitalistic industries might find it profitable to increase their labour in this way at the expense of the more capitalistic industries, this will, if there are no unemployed available, not be possible for all firms or for industries or firms of average " capital intensity ".

For each of these firms, which for our purpose may serve as representatives of a general trend, the problem will therefore be how to distribute its given labour force between the production of commodities and the production of machinery. The way to maximise the excess of current receipts over current outlay for all periods after the change had been completed would be temporarily to transfer labour from the production of commodities to the production of machinery. This would involve a reduction of the current output of commodities, and therefore of current profits, not only below what they would be if the past volume of output had been maintained, but still more below the level which could be achieved if current output were increased, by adopting quick and more costly methods till marginal costs just equalled price. These profits, which would have to be forgone if the additional machinery is to be provided, would have to be regarded as costs of, and would therefore have to be offset against, the larger profits which in consequence could be continuously earned from some future date onwards. It is this item which represents the costs of the extra waiting which the more capitalistic methods involve and which nowhere enters the calculations of Mr. Kaldor and Mr. Wilson. And since these profits which will be earned during this interval are, as we have seen, likely to be very considerable, it is more than likely that they will turn the scales against the more capitalistic process. In other words: profits will be higher on the method with the higher rate of turnover, *not* because they would accrue at a higher rate *after* the new equilibrium envisaged by Mr. Kaldor had been established (which they would not do), but because the profits on the less capitalistic method will *begin to accrue earlier* than those on the more capitalistic method. And it is the profits from now onwards, not merely profits after the additional equipment has been created, which must be considered in deciding whether that additional equipment is to be created at all. It is for this reason that our integrated firms, if their internal rates of return only rise high enough, will certainly not transfer labour from the production of commodities to the production of machinery, but, on the contrary, will transfer labour from the production of machinery to the production of commodities. And this change will not be merely temporary, but will evidently have to be maintained so long as the conditions continue which made it appear profitable in the first instance, i.e., so long as the prices of consumers' goods remain high relatively to wages.

Before leaving the integrated firms it is worth while to consider a little more closely exactly what will happen in their machine shops. These machine shops will have to give up some of their labour that can also be used indirectly to produce consumers' goods. And they will have to turn to the production of less elaborate, less costly machinery. Both of these changes will have the effect of making superfluous other kinds of labour which are specific to the production of the more elaborate kind of machinery or to jobs (such as the extraction of certain raw materials used in the production of machinery) which are wanted in a rigid quantitative proportion to the total output of machinery. In other words, the result of the shortage of the more generally employable labour will be unemployment of certain particular kinds of labour—that which is highly specific to the production of some kinds of machinery.

While it seems fairly evident that the results must be the same if we abandon the assumption of complete integration of the different industries, I must admit that I find it difficult to visualise precisely how it will be brought about. The physical conditions of the problem are of course the same: it will still be true that there will not be enough labour available at the same time to increase the output of consumers' goods quickly and to provide more machinery to produce a still larger output by more efficient methods at a later date. And it will also still be true that if entrepreneurs decide for the costlier but speedier methods this will bring them the larger profits. The problem is what will enable them to foresee this result; because, so long as they believe that at the ruling price they will be able both to get the labour to increase the output immediately and to get the manufacturers of machines to produce machines for them, it will appear profitable to try and do both ; the individual entrepreneur will no longer be directly faced with the problem of using the same labour either to produce more commodities or to produce more machinery ; and it will be only when he and all the other entrepreneurs who are in the same position try to do so that they will find out that it cannot be done.

The answer, I think, is to be sought *firstly* in the fact that the provision for the near future will necessarily have the first attention of the entrepreneur, because if the profits which might be made in the near future are not obtained, they (and perhaps a certain amount of permanent business) will be lost for good to a competitor, while delay in obtaining the more efficient machinery will affect the volume of output less and merely postpone the date when its costs will be lower. Closely connected with this will be the effect of the increasing uncertainty concerning the more distant future. Although the entrepreneur may expect the higher prices to continue indefinitely, he will be less certain that this will be so in the more distant future than in the near future. And on the principle of " making hay while the sun shines ", provision for the profits to be made in the near future will take the precedence.

Secondly, there is the fact that, since *in the short run* the more capitalistic methods will require *more* labour for any given increase of output than the less capitalistic methods, the rising supply price of labour will make itself felt more with the former than with the latter, i.e., the attempt to procure the machinery necessary for a given increase of output will meet with a rise in the price of the machinery comparatively greater than the rise in wages which would be caused by employing the number of men required to produce the same amount by less capitalistic methods.

Thirdly, there is the point that in so far as the producers of commodities increase their output in the first instance, not without any additional machinery but by the use of a cheaper kind of machinery, the need for the more elaborate machinery will arise only after the machinery provisionally installed wears out, and that therefore the demand for the more elaborate kind of machinery may for a time cease completely.

Finally, and perhaps most important, there will be the fact that so long as the producers of commodities do not succeed in actually increasing output quickly to the extent necessary to bring marginal returns down to a level they can expect to prevail in the long run, they will be uncertain which of the various elements in the picture will change so as to create a new equilibrium position. In other words, so long as profits on the quick methods do not actually fall and further endeavour appears to be needed to gather all the high profits that can be made immediately, the more elaborate preparations for future profits at a lower rate (though higher in the aggregate) and involving greater risk will not appear very attractive. But so long as people try to do both, to increase output quickly and to order more machinery, incomes and final demand will continue to run ahead of the expectations of the producers of consumers' goods. It will be only after investment has been considerably reduced that the cost of the expensive methods will catch up with prices and that thus the more capitalistic methods will once more appear attractive.

I am fully aware that all this is not very satisfactory and that a clearer picture of the precise process by which competition brings about this result would be very desirable. But I am not sure whether this is possible. We are dealing with a position of disequilibrium in which developments depend on the precise order in which the various changes follow each other in time and where the situation at any moment is likely to be, as we have learnt to say, "confused". We cannot say precisely when entrepreneurs will abandon the self-defeating attempts at the same time to build up elaborate equipment and to increase production quickly. All we can say is that the longer the effect with which we are concerned is delayed, the stronger must become the forces tending to bring it about (i.e. the longer increases in final demand are allowed to bring about proportionally larger increases in investment, the greater must become the rise of prices of final goods relatively to costs), and that therefore they are bound sooner or later to become the dominating element in the picture.

VII

Any attempt to discover from the available statistical information whether the Ricardo Effect does in fact operate as these considerations suggest encounters considerable difficulties. We can do no more here than show what are these difficulties of an attempt at verification and why the evidence so far available does not seem to allow any definite conclusions.

In the first instance it must be pointed out that, although the phrase "real wages" is sometimes used in this connection, the relation between wages and product prices with which we are concerned has no close connection with "real wages" in the sense in which this term is commonly used. While in most contexts when real wages are discussed what is meant is the relation between wages as received by the worker and the prices of the commodities on which he spends these wages, we are concerned with the costs of labour to the entrepreneur and their relation to the prices of the products he produces. We shall only just mention that even the wages paid to the workers and the cost of labour to the entrepreneur may sometimes move differently.[1] The more important difference is, however, that between the prices of the goods on which the workers spend their wages and the prices of the goods in the production of which the labour is used. The following are the main sources of this difference:

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[1] In consequence of changes in taxation, social insurance charges, and legislative or trade union regulations affecting conditions of work.—I remember having once seen detailed comparative statistics of the "real wages" of linotype operators in Sweden and Austria, which seemed to show conclusively that while the purchasing power of the wages to the workers was much lower in Austria, they meant a much larger real cost of labour to the manufacturer.

1. While the " cost of living " is affected largely by the prices of agricultural products, it is for our purpose mainly the prices of manufactured articles that are of importance. More generally, the importance for our purpose of the change in price of any particular product varies with the relative amount of capital used in its production (which is relatively low in agriculture and relatively high in manufacture). The significance of this will be seen when it is remembered that for our purposes a mere shift in demand from articles requiring comparatively little capital in their production to articles requiring a great deal would have the same effect as an increase in total demand. Any statistical investigation would probably do well to confine itself in the first instance to the effect of changes in the relation between the prices of the product and wages in any given industry on investment in that industry. In so far as a more general investigation is attempted, prices ought probably to be weighted according to the proportional amount of capital used in the production of the different goods. And where we have to deal with an " open system ", as will regularly be the case in statistical investigations, we shall have further to distinguish between prices of home produced and of imported commodities.

2. While from the " cost of living " point of view it will be retail prices that will be relevant, for our purpose it will be prices received by the manufacturers that will count; and it is in general true that, for reasons into which we need not go here, the latter (or at least wholesale prices) fluctuate more than retail prices.

3. While from the " cost of living " point of view it is the relation between wages and the price of a fixed quantity of commodities which is relevant, we are here concerned with the relations between the costs of labour and the marginal product of that labour. This marginal product, however, is itself not a constant but a variable and either may vary as a consequence of the effect with which we are concerned or may by its change become the cause of this effect. In other words, changes in the marginal product may appear either as dependent variables, when they are the consequence of a change in the proportional combination of capital and labour, or as independent variables, when they are brought about by changes in the " data ", particularly by changes in technological knowledge. Technological change, at least when it is rapid and general, may here cause serious difficulties.

So long as technological knowledge remains constant the relations between the cost of labour and the price of its product which are relevant for our purpose will generally be the same as the relations between the costs of a fixed amount of labour and the price of a fixed amount of the product—although when we have to deal with an " open " system changes in the price of an important raw material may disturb even this simple relationship. But once changes in technical knowledge have to be taken into account, the problem becomes very much more complex. It is evident, to take an extreme case, that if an advance in knowledge enabled us to produce with exactly the same machinery and other outlay 20 per cent. more than before, the immediate effect would be very similar to that of a rise in the price of the product. So long as such a change occurs in isolation, there is no special difficulty about it. But when it is combined with price changes, a problem arises for which it is difficult to see a practicable solution. To judge the significance of any price change occurring together with technological change we should have to know which price relationship now "corresponds" to the price relationship which existed before, i.e. which relation between the cost of labour and the price of the product will now make investment no more and no less attractive than the price relationship which existed before the technological change. At the moment I have no solution of this difficulty to offer.

Competition, Pliopoly and Profit

By **Fritz Machlup**

PART II[1]

13. Specific Rents and Pure Profits, *ex ante* and *ex post*. 14. Advance Calculation and Prospectus. 15. Accounting and Economic Concepts. 16. The Distribution of Total Revenue. 17. Profits as seen by Outsiders, Insiders and Economists. 18. The Economist's Dissenting Calculation. 19. Artificial Scarcity and Monopoly Rent.

13. Specific Rents and Pure Profits, *ex ante* and *ex post*.

Attempts at splitting up the excess of receipts over all costs, explicit or implicit, into rents and pure profit may appear like splitting hairs. The separation seems particularly subtle (and useless) because the dividing line will shift evasively with the point of view that is taken. It will be different looking backward or looking ahead, starting a new business or continuing an old, taking account only of actual expenditures or also of displaced alternatives, considering short periods or indefinitely long ones, and so on.

Yet, as usual, the problem under consideration dictates the point of view that should be taken. Our problem is the probability of entry into an industry and, hence, the attractiveness of starting a new business or completely rebuilding an existing one. This settles the question of what must be considered as cost in our analysis: not historical cost (*ex post* cost); but anticipated cost (*ex ante* cost); not contractual cost but opportunity cost; not the cost for a short period but the cost for a period in which the investment may " pay for itself ".

The anticipated excess of receipts over costs in this sense may be either (1) net earnings which can be imputed to a specific resource, which thus has to the enterprise a value in excess of its value in alternative uses, that is to say, in excess of its opportunity cost, or (2) net earnings which cannot be imputed to any resource or asset of the enterprise. The first of the two types of net earnings is specific rent, the other is pure profit.

The net earnings (expected by the entrepreneur who is entering an industry) which are explained by the economist as the result of uncertainty, holding back other business men from entering *en masse* the same industry, cannot be imputed to any asset or resource owned by the one who starts the business. The same is true for the net earnings which are explained as the result of indivisibility of certain of the resources needed in the industry. If the indivisible resources can be easily replaced they cannot acquire a value above the cost of replacement. Thus, the net earnings which are due to indivisibility preventing further expansion or entry cannot be imputed to the indivisible resources. These net earnings are not imputable to any asset, and are therefore called pure profit. (And they may just as well be called monopoly profit.)

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[1] For Part I, see Economica, February, 1942.

The criterion of being non-imputable would perhaps not hold for the " profits " of an existing enterprise. If the net earnings of an existing enterprise are protected against pliopolistic pressure either by uncertainty which deters potential newcomers or by indivisibility of resources which makes new entries unprofitable, the anticipated profit may be imputed to an intangible: to the fortunate market position of the firm. One may speak of the " good will " of the firm. This good will—anticipated profits capitalised—is usually paid for in case the ownership of the firm passes into other hands. To the new proprietors, who will have paid for the intangible good will, pure profits may then take on the aspect of rent.

But this should not confuse the issue. For the problem of pliopoly, or newcomers' competition, the relevant point of view is not that of one who acquires an existing business but rather that of one who starts a new one or, perhaps also, of one who completely rebuilds and replaces all the resources necessary for the production of the service in question.

How hard it is to keep apart the different points of view—different both as to the persons concerned and as to the direction of their views—can be seen when we look once again into the uncertainty explanation of profit. Two distinct effects of uncertainty have so far been left unseparated. There is, in the first place, the uncertainty of " others ", the uncertainty which prevents these others from going into the venture and makes it possible that *ex ante* profits may come out of the advance calculations of those who calculate with smaller safety margins. There is, secondly, the " own " uncertainty of those who do enter the business; their own uncertainty which makes them calculate *ex ante* earnings net of some (smaller) safety margins and which thus makes it possible that, when the expectations come true, modest *ex post* profits will appear where *ex ante* profits had been zero and considerable *ex post* profits will appear where *ex ante* profits had been modest.

An economist's statement that pliopoly exists in a certain industry (that is to say, that profits will bring forth new entries and new entries will eliminate profits) will usually imply the assumption that profits as seen by the economist and profits as seen by those engaged in the business and profits as seen by those contemplating entering the business are all more or less the same. For, clearly, if the results of the advance calculations of potential newcomers look much less favourable than the results calculated by the insiders or the disinterested observers, new entries will not take place. The possible discrepancies between the insiders', outsiders' and economists' estimates of profit will have to be analysed further.

On the other hand, that a certain industry has been profitable for several years need not imply absence of pliopoly if the profits in question are merely *ex post* results of low valuations of resources in the past. If the resources needed for the industry are now relatively scarcer, the industry will not be profitable in an *ex ante* sense.

And again, that profits in a certain industry have been zero and are expected to remain zero need not yet indicate pliopolistic conditions. As was pointed out above, resources employed by the existing firms may possess an artificially created scarcity, and the rents earned by these resources may have the distinct character of monopoly rents. If these rents are not paid out as cost but are part of the net earnings of the firms, the scarce resources may be among the valuable assets and the statistical " profit rate "—the rate of income to capitalisation—may appear as " normal ".

Relevant to the problem of easy entry into an industry are, as seems now fairly clear, both *ex ante* profits and *ex ante* rents, calculated, on the one side, by prospective entrants and, on the other side, by insiders continuing in the industry (and sometimes checked against the " objective " calculation by the economist), and, of course, calculated for periods sufficiently long to warrant the investment.[1] At first thought one might suppose that the advance calculation of the prospective entrant is all that matters. Yet, for a significant evaluation of the situation it is essential to compare the potential newcomer's prospects with the insiders' prospects. For, after all, if the advance calculations of outsiders look unattractive, we can speak of impeded entry or absence of pliopoly only after ascertaining that the insiders' advance calculations come out with a nice excess of receipts over all costs. (And where rents assume the character of cost to the individual firm, a final evaluation will require an " objective " check by the economist.)

In simple words, if the outsider's advance calculation were as promising as those of the insiders, the former would take up the business. But there may be " something " that makes the outsider's calculation unsatisfactory. This may be due, as we have seen, to several circumstances: (1) to a deterring degree of uncertainty, which may force the potential newcomer to calculate with excessive safety-margins while the insider may feel much less uncertain about the future prospects; (2) to the indivisibility of large productive units, making the prospects for " another " production unit appear unsatisfactory while the prospects for the existing amount of production facilities may be unusually bright; (3) to the scarcity of some productive resource, privilege or right which is not available to the would-be newcomer (or available only at forbidding conditions) while it is available to those who carry on in the industry. In very popular language, putting oneself in the place of an encouraged or discouraged candidate for entry, pondering over his own advance calculation and reflecting on the situation of the insiders, he would ask: "What have they got that I haven't got?

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[1] This long-period aspect has the advantage of avoiding the arbitrariness which the concept of *realised* profits of any brief period (such as the year) must have owing to the arbitrariness of asset valuations.

Such advance calculations are made every day by scores of business men, either for themselves when they are making up their minds about the prospects of a contemplated business venture, or for potential partners or lenders when such are invited to consider participation in the enterprise. It will aid us in the clarification of the problem of *ex ante* profits and rents if we study the pattern of these advance calculations.

14. Advance Calculation and Prospectus

At the risk of committing the offence of misplaced concreteness, let us try to understand the pattern of advance calculation, investment decision and, in particular, decision to enter an industry, by working on an illustration which, though made-up and simplified for our purpose, gives some appearance of realism.

There is proposed, let us say, the erection of a small paper-board mill for the production of a special sort of paper board, made chiefly from chemical and mechanical pulp. A small groundwood-pulp mill is to be connected with the paper-board mill and to supply a part of the necessary groundwood (mechanical pulp). After careful comparisons of the best locations and most economical plant sizes—in full consideration of the cost of water-generated and steam-generated power, the cost of pulpwood (spruce, balsam fir or poplar) and of the purchased raw stock, the cost of labour, the cost of construction and equipment, the tax situation, the freight situation, etc., etc.—it is suggested to build the mill in Maine (near spruce forests and on a river site with good water-power). The hydraulic power plant is planned for 1,250 h.p., the paper-board mill for a production of ca. 60 tons in 24 hours. (Paper mills usually operate continuously except week-ends.)

The capital requirements of the firm are estimated as follows:

Fixed Capital	$
Land and Hydraulic Power Construction	160,000
Buildings	400,000
Machinery and Equipment	650,000
	$1,210,000

Working Capital[1]	$
Wood (for average of six months)	50,000
Raw stock and other supplies	85,000
Goods-in-process (ca. one month's production) ..	55,000
Finished goods on stock (ca. two months' production)	120,000
Accounts receivable (ca. 1½ months' production) ..	105,000
Cash (for contingencies)	20,000
	$435,000
Total capital necessary	$1,645,000

Of this amount the proponents plan to raise $500,000 through a bond issue (at 6 per cent.) from a group of financiers, while the rest is to be raised as share capital among themselves and various friends. Their negotiations and considerations are based upon a confidential prospectus with advance calculations as follows :

" Paper board in the quality which we are planning to produce has sold at $95.00 a ton (and higher) during recent years, which means approximately $90.00 f.o.b. mill. We are calculating conservatively with an average price of only $80.00 f.o.b. mill. Our plant and equipment is contemplated for an output of 60 tons in 24 hours, which in 255 working days per year would give a yearly production of 15,300 tons. Allowing for temporary stoppages, breakdowns, etc., we shall count only on 50 tons daily and 250 working days, hence on a yearly production of 12,500 tons. On these total sales of 12,500 tons at $80.00, that is, $1,000,000, we figure a deduction of $40,000 for discounts, allowances and bad debts, which seems sufficiently conservative since none of the investigated firms in a similar position has in any year had more than 3 per cent. of such deductions. In our conservative estimate our yearly sales should be at least $960,000. This is the figure used in our statement below.

[Comment of the economist : Up to this point several contributions to the safety-margin have been provided. The potential production of 15,300 tons at a price of $90.00 would bring a gross revenue of $1,377,000 minus 3 per cent. for deductions, that is $1,336,690. Of course we must not think that all the excess over the $960,000, which appear in the calculation, are safety-margin—i.e. $376,690—because the operating expenses are calculated below on the basis of the smaller production. The safety-margin in the expected selling price ($10.00 per ton) and in the deduction from gross sales (1 per cent.) amount to $135,000. The further safety-margin through the reduced estimate of annual output would amount to 2,800 tons times the net-profit margin per ton.]

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[1] Large items in manufacturing expense may of course be negligible items (or none at all) in a list of working capital requirements and *vice versa*. Working capital requirements refer to inventories, etc., and their size may depend on many things other than the rates of input.

"The largest item in our manufacturing expenses is raw stock. We calculate on the basis of an input of 60 per cent. chemical pulp, to be bought from various sources, and 40 per cent. mechanical pulp, half of which will be bought, the other half produced in our own groundwood mill out of pulpwood grown in the state (spruce and balsam fir). We calculate with prices of raw stock and pulpwood 15 per cent. above the highest prices of the past ten years, and with a loss of fibre of 10 per cent. (instead of the customary 5 per cent.). The estimates for the expenses for felts, wires and screens, belting, lubricants and other supplies are all very conservative and the estimates in fuel cost include not only a margin for possible price increases of 20 per cent. above present prices, but also average consumption figures of 15 per cent. above the ones guaranteed by the firms which submitted bids for boilers, steam-engines, drying-cylinders, etc. The estimate for wages is conservative both as to number of men and wage rates. It is based on the largest crew in any of the investigated mills and on wage rates 20 per cent. above the union wages in comparable establishments.

[Comment of the economist : There are again several supposedly generous " reserves " in all the figures used in the calculation of the direct manufacturing expenses. Whether or not the safety-margin will turn out, in the future, to be ample is of course unpredictable.]

" Among the general expenses we have figured administration expenses, insurance premiums, taxes, etc., on the basis of careful estimates. For depreciation and obsolescence we allow 4 per cent. per year for buildings (corresponding to a service life of 25 years) and 10 per cent. for machines and equipment (corresponding to a service life of 10 years). Among the fixed charges appear $30,000 for 6 per cent. interest on a $500,000 bond issue.

[Comment of the economist : The uncertainty involved in estimates of the service-lives of fixed assets is too great to permit any judgment concerning the safety-margin included here. The physical life of machines is mostly much longer than ten years, but the length of their economic life depends on the rate of technical progress, current interest rates and other changes on the production or selling end of the industry. He who counts on having his investment in machines pay for itself within ten years usually entertains the silent hope that they will actually render useful service for several years after their amortisation. This is then another item under the heading " safety-margin ". Besides the conservative estimate of service life, the initial cost of the fixed assets may be calculated with more or less caution, thus providing an extra cushion. However, while the investing firms regularly think that they add a sufficiently large reserve for possible excesses of construction cost over the bids and estimates of contractors and construction firms, very frequently these margins turn out to be too narrow. But what counts here is the expectation, not the afterthought. There is no depreciation allowed on water-power and land. This implies that they maintain their value indefinitely. The cost of the use of these fixed resources appears not as a separate item in the profit and loss account or cost calculation, but merely as a part of the normal return expected on aggregate investment.]

“ An abbreviated statement of the estimated profit calculation follows :

		$
Sales per year (12,500 tons at $80.00)		1,000,000
Less discounts, allowances, bad debts		40,000
		960,000
Direct manufacturing expenses per year :	$	
Raw stock and materials	415,000	
Felts, wires, screens, belting, lubricants, etc.	25,000	
Fuel, oil and coal	80,000	
Wages	170,000	
		690,000
Income from operation		270,000
General expenses and charges per year :		
Administration expenses, general expenses, etc.	45,000	
Insurance	6,000	
Taxes	15,000	
Depreciation on buildings (4 per cent.)	16,000	
Depreciation on machinery (10 per cent.)	65,000	
Interest on 500,000 bonds (6 per cent.)	30,000	
		177,000
Net income		93,000
Normal return on share capital (6 per cent. of $1,145,000)		68,700
Profit or surplus above normal return		$24,300

“ A 6 per cent. return on our investment seems therefore amply secured. The net income, in the above statement, amounts to 8.12 per cent. of our share capital, but both sales proceeds and costs have been calculated with such conservative margins that under normal circumstances the actual net income may well be many times the one shown above. A calculation based on present prices of product and materials, on present wage rates, on construction costs according to actual bids and estimates, on guaranteed fuel expenditure and normal loss of fibre and on full utilisation of capacity would result in a 40 per cent. return on our capital. In other words, with good luck in all respects our investment would pay for itself in two and one-half years, and, on the other hand, would seem warranted even under very adverse circumstances."

[Comment of the economist: The confidential prospectus shows no more than the usual optimism. Of course, with a smaller dose of optimism the "investment opportunity" would vanish. A fall in the product price from the $90 at which it sells at present to $70 is nothing unheard of, yet it would wipe out the whole net income. A long strike, a defect in the power plant, or similar work stoppages may easily turn a year's profit into heavy losses. To be sure, calculations of investment returns take the "year" only as a convenient accounting period; the relevant period may be ten or twenty years, that is, no less than the time in which the investment is expected to pay for itself under adverse conditions.[1]]

15. Accounting and Economic Concepts

It is often a useful exercise to relate cost accounting figures with the concepts which matter in theoretical economics. A few questions concerning the economic interpretation of the above profit and cost items shall be discussed here.

(1) Are the "direct manufacturing expenses" of the above statement identical with short-run variable costs? They are not, but the two have a relationship to each other. The calculation was prepared for the consideration of investment plans, hence for long-run considerations (and all costs are variable in the long run, that is to say, in a planning stage); that all items in the calculation were expressed in per-year figures was only a matter of convenience. Yet, one may imagine that some time after the investment has been undertaken the management makes up its production plans and budget estimates for a period ahead, without contemplating any changes in fixed resources; then these direct manufacturing expenses will be the major part of short-run variable cost. Some portions of some other items which appear under general direct expenses will probably also be variable and, therefore, will have to be added. For example, user cost, that is, the difference between depreciation and maintenance of idle plant and depreciation and maintenance of plant utilised in various degrees, will be a short-run variable cost. Or, general expenses, taxes, etc., may contain parts which are variable with the

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[1] The relevant period is not determined by the length of the life of the most durable resource employed in the enterprise—which would be infinity in the case of land or 25 years in the case of the buildings of the above illustration. In cases of a product which is expected to meet only a very temporary demand the relevant period is determined solely by the expected duration of the demand, no matter how long the physical life of the fixed resources is. In these cases the investment must be expected to pay for itself in the short period during which the demand is believed to last—or the investment will not be undertaken. Of course, the cost of the fixed resources is then the cost of their acquisition or construction minus an eventual salvage value. (A favourite example of such a case is the construction of a "grand stand" for a one-day street procession or celebration. The investment must pay for itself on the one day, even if the structure potentially might last many years.).

amount of business transacted. Or, the amount of working capital invested in inventories of all sorts, and thus inventory insurance premiums and interest charges may be variable with output. (The variable cost from interest on working capital will perhaps be negligible if the interest that can be saved or earned through short-term investment of liquid funds is little.) But the main point to be understood is that the " direct manufacturing expenses " of the above statement refer to one certain output, whereas " variable costs " are essentially a series or schedule of cost figures referring to several alternative volumes of output.

(2) Can the " income from operations ", as shown in the above statement, be identified with quasi-rent ? It cannot, for all the reasons given for the non-identity of direct manufacturing cost and short-run variable cost. Quasi-rent will fall short of income from operations by all those items by which short-run variable cost exceeds direct manufacturing cost.

(3) Can " general expenses and charges " be identified with fixed costs ? Of course not, as follows logically from our answers to the first question. It bears repetition to mention that in an advance calculation for investment plans *all* items are by definition variable, though some of the items will in the future, after the investment has been made, become fixed charges due to unavoidable depreciation or fixed commitments.

(4) Is the " net income " shown in the statement profit in the economic sense ? Certainly not. The residual income of the firm still contains the cost of the owned resources, in the particular case the interest on the owned capital.

(5) Is there no rent for the use of water-power and land ? Rent payments for water-power and land were capitalised in the purchase price (and construction cost) of these fixed resources. The cost calculation contains therefore no explicit item for rent ; instead, the interest charges on the respective investments—either contractual interest paid out or normal return of the own capital—comprise the " rent " for these resources. A separate item for rent would involve double counting, unless the value of land and water-power were not included in the aggregate investment on which a normal return must be earned. If the fixed resources in question had a greater value to the particular firm than to other potential users, so that the purchase price did not capitalise the full rent, then the specific rent (which would be equal to the difference between rent earned and rent paid) would be no cost element to the firm but would be a part of the surplus above normal returns.

(6) Is the " profit or surplus above normal return " pure profit in the economic sense ? Not necessarily, because this final net remainder may just as well consist of nothing but specific rents, that is, income items attributable to specific resources. (On the other hand, some such specific rent items may have been switched into

cost, for example, if administration expenses contain salaries above the "opportunity values" of the particular experts.)

To the extent that the surplus in question is economic *ex ante* profit it may result (apart from the effects of indivisibility) from the effects of uncertainty upon the masses of outsiders, that is to say, from the lack of foresight, daring and enterprise of potential competitors, but, on the other hand, it may just as well result from unwarranted over-optimism and errors of judgment on the part of the proponents preparing to take up the business. Will the future tell which of these two factors was more important in the particular case? Will this perhaps be revealed many years later, when *ex post* earnings come up to, or fall desperately short of, the expectations which have induced the investors to undertake the enterprise? This question is more than a fortune-teller, not to speak of an economist, can answer. For who should say which developments were foreseeable and which not? If all developments conformed exactly to the "potentials" from which the "safe" estimates in the advance calculations were derived; if, consequently, the eventual *ex post* profits exceeded the estimated profits by the full safety-margin; then perhaps we would be permitted to say that these profits were the result of the entry-repelling feeling of uncertainty and of nothing else. But where the situation has altered, where prices, costs and production volumes have undergone various changes, it would be ridiculous to try to dissect eventual *ex post* profits and to attribute certain positive or negative portions to the effects of unforeseeable change, of entry-repelling uncertainty or of outright errors of judgment and calculation.

16. The Distribution of Total Revenue

The discussion of the nature of net revenue, rent and profit may gain in focus by a schematic "map" tracing the "distribution" of the prospective gross revenue of the business enterprise. This distribution map does not show the actual money flow—for, in reality, costs are usually defrayed before proceeds are received and, when proceeds are received, the funds may go into debt payments or short-term investment or idle liquidity reserves or what not (though the most normal use of the greater part of the funds is reinvestment in repetitive cost outlays). The map is to show how gross revenue is expected to cover direct costs, contractual expenses and sunk investment, normal returns and supernormal returns of several sorts. The "Remainders", after deducting the various cost items, are named merely by numbers rather than by the customary but ambiguous terms which accounting and business language employs in too many meanings.

Although other interpretations are not ruled out, the period over which revenue and costs are estimated is preferably the shortest of the long periods over which the investment seems warranted. Over these long periods there arise fewer of the awkward problems of proper depreciation charges: the total cost of most of the durable but wasting (exhausting) fixed resources, acquired as initial investment, must be completely amortised, and no valuations at intermediate degrees of deterioration are called for. In other words, the investment in wasting fixed assets (machinery, equipment) is "sunk" as a whole and, instead of annual depreciation percentages, one hundred per cent. of it is put down as the cost of acquired fixed resources.[1] Where the services of a specialist are secured by a long-term contract or where the use of plant or machinery is secured in a long-term lease or where capital funds are raised through bond issues, mortgages or other long-term contracts, the contractual salary, rent and interest payments are entered under the cost of hired (leased, borrowed) fixed resources. Both the cost of acquired wasting fixed resources and the cost of services from hired fixed resources appear here under the heading of "*pre-committed*" *cost.*

In contradistinction to these costs to which the firm commits itself at its birth (or at the beginning of the new undertaking), the *direct costs* are of a "pay-as-you-go" character. They are the costs of resources which you buy or hire as, if and when you use them.

Remainder I—sales minus direct cost of the goods sold—is analogous to what some accountants call "net income from operation" (analogous but not equal, because the one is anticipated, the other a realised remainder). We have mentioned before that Remainder I is not analogous to quasi-rent because the latter may be minus some variable parts of the pre-committed cost of final resources, particularly in the form of user cost (depreciation through use).[2] Remainder I is of course not analogous to the "net income from operations" for those accountants who want this income to be net of depreciation.

Remainder II is net of all costs in the accounting sense. It is, thus, the (anticipated) residual income of the firm and is analogous to the accountant's (realised) "net income" or "profit". It still contains the opportunity cost of all the services which are gratis at the disposal of the firm: before all, its share capital. The opportunity cost of investment funds, that is, their potential return in other uses or, in customary language, the "normal return of capital", is usually the only cost item not included in the cost accounts of the corporations. In single ownership or partnership firms also other gratis services may be important: "normal compensation" for the owners' activities in the firm and perhaps "normal rentals" for land or premises, owned by the owners of the firm and used but not paid for by the firm, may be among the opportunity costs to be deducted from Remainder II.

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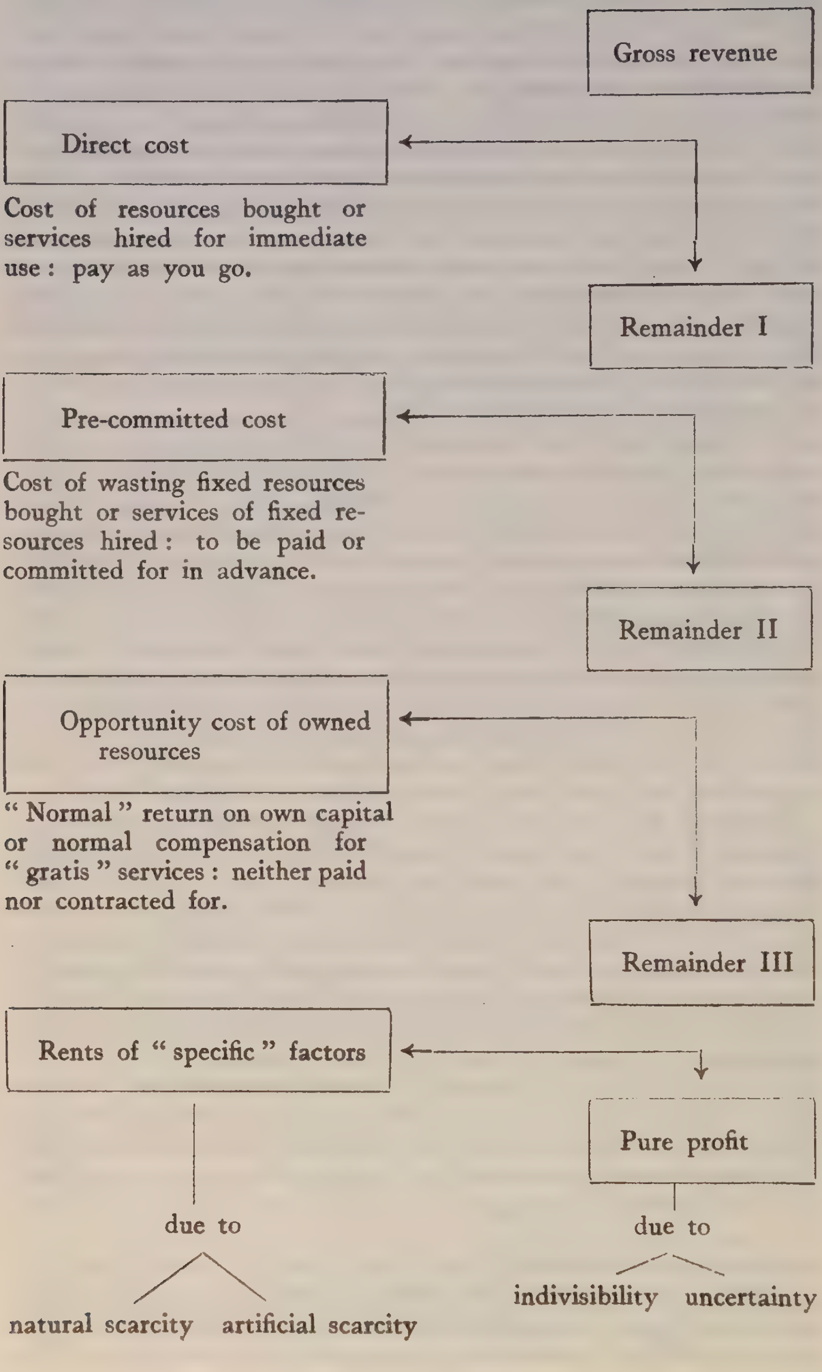
[1] For a brief discussion of the nature of "fixed resources" see Part I, Section 7.

[2] The variability of depreciation allowances, which is dictated by the fact that wear and tear through use may exceed depreciation through mere lapse of time, means only an *earlier* exhaustion of the fixed resource; what varies is the time-distribution of depreciation but of course not the amount of total depreciation over the lifetime of the asset. This explains why the cost of the use of a fixed resource may be "variable" in the short period.



Cost of resources bought or services hired for immediate use: pay as you go.

Cost of wasting fixed resources bought or services of fixed resources hired: to be paid or committed for in advance.

"Normal" return on own capital or normal compensation for "gratis" services: neither paid nor contracted for.

Remainder III is net of all costs, both in the accounting and in the economic sense. It is this Remainder III which is the chief subject of analysis in the theory of newcomers' competition, the theory of pliopoly. A positive Remainder III is equivalent to " supernormal profits ". Since it may consist of rents and of pure economic profit, both being defined as some sort of surplus above all costs, the word " net surplus " may be the best synonym for Remainder III. (Of course, this net surplus has little to do, and must not be confused, with the accounting term " surplus ".)

Cases where pliopoly is absent are most often characterised, as was pointed out before, by a typical discrepancy between the calculations of insiders and those of outsiders, with a positive Remainder III for insiders and a negative or zero Remainder III for outsiders. This discrepancy, however, is sometimes largely a matter of how our concepts are used. Assume, for a drastic example, that would-be newcomers are kept out of a lucrative trade by threats of violence. Two alternative ways of describing the profit estimates of the outsiders are possible. According to the one, the advance calculations of the would-be entrant will show a very tempting Remainder III, but in spite of it he will stay away, for he will not dare ignore the threats of the racketeers in control of the trade. According to the other way of speaking, the advance calculation of the would-be entrant will show a negative Remainder III if full account is taken of the costs and damages which may arise from intruding into the " protected " business. The second way of stating the matter may be preferable from many points of view, but can be used only for those cases where the barrier against entry into the trade (or the getting over or around the barrier) is reducible to a dollars-and-cents expression.

A catalogue of typical cases of consistent and inconsistent profit estimates by outsiders, insiders and economists, with the most likely implications concerning newcomers' competition, may help in organising our thoughts on the subject.

17. PROFITS AS SEEN BY OUTSIDERS, INSIDERS AND ECONOMISTS

Outsiders, as we have used the term here, are the potential newcomers to an industry (trade, business, profession), that is, the enterprising people who consider taking up the business if it appears worth while. Their profit calculations as well as those of the insiders (that is, of those who have been operating a going concern in the industry) are, of course, " subjective ", inasmuch as both outsiders and insiders are the " actors ", motivated by their wishes and expectations. Calculations by the economist, on the other hand, may be called " objective ", inasmuch as he is the " observer ", disinterested and merely curious. His " objective " calculation may be called for, not because of any superior foresight or knowledge of the economist, but chiefly because of the relativity of cost and rent :

what may be cost to the single firm may be rent for the industry, and monopoly rent at that. In those cases where monopoly rents assume the nature of cost to the individual firm, the net surplus may be zero in the outsiders' calculations as well as in the insiders'; but the economist must not omit these cases from his analysis of pliopoly. In the catalogue which follows the cases in question would come under type *D*.

A positive net surplus (Remainder III) may simply be due to error or over-optimism on the part of a particular calculator. If he is an outsider, while other calculators at the same time—insiders in particular—obtain no favourable results, a malinvestment is likely to occur. This case, listed as Type *A*, is probably not very important. It is said, however, that there are certain trades which are typical for consistent over-optimism and errors of judgment on the part of outsiders, with the result of constant overcrowding of these trades and a quick turnover in entrepreneurship: easy entry of unenlightened newcomers and hasty exodus of disillusioned enterprisers. Retail stores in large cities are cited as examples.

A positive net surplus, expected by both outsiders and insiders, may be a matter of a short-lived "disequilibrium", a temporary situation, created through improved sales or cost conditions, to which enterprising people are just about to react to an extent sufficient to terminate it. The sequence is this. The advance calculations with positive net surplus reflect attractive investment opportunities; these are being seized upon; the newcomers' demand for factors of production and supply of products affects cost and sales conditions in the industry in such a way that in due time further potential entrants will not find their advance calculations attractive; not any longer will Remainder III in new calculations be positive. Newcomers' competition will have worked.

It will be clear that this case, listed as Type *B* (1), is the model of perfect pliopoly, provided, of course, that the time lags involved are not excessive. (Case *A* was also a pliopolistic one; indeed, entry might be considered "too" easy in the trades with excessive birth rates and corresponding mortality rates.) Just what time lag may be called normal and what excessive, or, in other words, how long a "temporary disequilibrium" in a "pliopolistic industry" may last before it is in danger to be regarded as the "under-investment equilibrium" of a "non-pliopolistic industry", this is a matter of the economist's judgment. In many cases it will probably be preferable to speak not of presence and absence but rather of various degrees of pliopoly.

Type *B* (2) is non-pliopolistic. Some sort of barrier against entry prevents elimination of a positive net surplus for outsiders as well as for insiders. This barrier, however, must be of that peculiar sort, mentioned before, which does not permit of any reflection in the cost or investment figures of the (contemplated or existing) firms: the barrier is not reducible to a dollars-and-cents expression. The outsider is attracted to the industry by handsome profits, but he cannot get in; the obstacle which bars his entrance is not removable for money; the fortunate insiders cannot ascribe their sheltered position to any possession which can figure as an asset in their books; hence, insiders as well as outsiders continue to find that the particular business is blessed with a supernormal profit rate.

SUPERNORMAL PROFITS AND THEIR CAUSES

Type	Remainder III (*Net Surplus*)	*Calculated by*	*Possible Causes*
A	positive zero (or negative)	outsider insider	(1) Error of judgment, sometimes resulting in overcrowded trade with high mortality rate.
B	positive positive	outsider insider	(1) Temporary disequilibrium, terminated by entry into industry. (2) Barrier against entry, without possibility of transforming it into cost items or capital items.
C	negative (or zero) positive	outsider insider	(1) Uncertainty affecting outsider, reflected in his higher cost estimates (and lower proceeds estimates). (2) Indivisibility of resources, making for poor prospects for "another" production unit in spite of good prospects for existing facilities. (3) Barrier against entry (of enterprise or resources), constituting a cost item or capital item to new entrant but not to insider.
D	zero (or negative) zero positive	outsider insider economist	(1) Barrier against entry (of enterprise or resources), transformed into cost items or capital items of all firms.

Cases in point are firms operating under a franchise or licence if the franchise or licence was not acquired for money or money's worth and is not transferable for money or money's worth, and if such franchise or licence is not obtainable for money or money's worth for those who have not got it.

The positive net surplus, anticipated by the insider, will in this case be a rent income, for it can be imputed to the franchise or licence, which protects his business against newcomers' competition. Hence, the franchise or licence may be very valuable; but it cannot be an asset in the books of the insider, because it has neither a cost nor a market value.

Another illustration of Type *B* (2) was mentioned above: the case where potential newcomers were kept out by threats of violence. In this case there is nothing which could possibly become the asset to which the insiders' net surplus might be attributed; and the anticipated violence against intruders may not be reducible to expense items in advance calculations of the latter. Thus, both insiders and outsiders will envisage handsome profits.

The most general constellation is that of Type *C*, where long-run supernormal profits are secured by insiders, not in spite, but exactly *because* of the absence of similar profit expectations on the part of potential newcomers. The zero or negative net surplus calculated by outsiders is the condition for the endurance of a positive net surplus for insiders.

C (1) is the case in which uncertainty and caution force the potential entrant to calculate costs and proceeds with such safety-margins that no positive net surplus results from his advance calculation. The case has been discussed and illustrated above. Uncertainty as the industry's protection against new competition is effective on the cost as well as on the selling side of the calculation. Indeed, in some instances it may not be easy to distinguish the two. If an outsider shrinks from entering an industry whose products are in unusually heavy demand, his staying out may be explained either by conservatively low estimates of proceeds or conservatively high estimates of cost. (Amortisation cost, perhaps; the calculator, lacking confidence in the continuance of the good market, figures with reduced selling prices in the future or with a shorter economic service life of his fixed investment.) The insider will then reap the profits of the good conjuncture, undisturbed from intruders; furthermore, to the insider many items, especially on the cost side of production, will appear less uncertain than to outsiders and will require much smaller safety-margins; and finally, a degree of uncertainty which is forbidding to one who contemplates taking up a new business will not be forbidding to one who merely carries on.

Indivisibility, or more correctly imperfect divisibility, of certain fixed resources (such as a plant of economic size) is listed under *C* (2) as another protection of the industry against new competition. To be sure, it will hardly be possible to separate in practice the effect of this factor from that of uncertainty. But it seems fair to state that, in actual fact, imperfect divisibility of certain resources (natural, human or man-made) is effective in almost all industries, trades and professions, and probably more effective than uncertainty. One general store, one barber shop and one restaurant may be profitable in almost every village, but there may not be enough business for a second such enterprise. The potential newcomer, therefore, foresees no profit from the particular undertaking and stays away, while the one who has come first, the insider, can thrive under the protection of imperfect divisibility.

The same is true in many lines of industrial production where a number of firms share a market at profitable prices, whereas another firm with its substantial addition to the product supply would have to face a price collapse or even a price war. If the addition to supply were negligible, no such price collapse would threaten; but the imperfect divisibility of plant would necessitate a large output and thus involve the danger of a smashing price reduction and even cut-throat competition. The newcomer, taking this possibility into account, will find the whole proposition unattractive. He will give up the idea of entering the industry; and the insiders' profits will be secure.

These examples and the ones given before (Part I, Section 11) will suffice to impress us with the paramount importance which imperfect divisibility of the productive unit has for the explanation of the absence of pliopoly and the continuance of supernormal profits in the long run.

Under *C* (3) another type of obstacle to entry is listed, which, as in the two preceding cases, results in insiders' net surplus protected by the outsiders' lack of profit expectations, but with the qualification that the " profits " or surpluses exhibit the character of rents. An example is the possession by insiders of valuable patent rights securing them exclusive use of certain processes or the exclusive production of certain articles. If the patent rights have no cost value to the holders and thus cannot constitute assets in their books, there will be no corresponding cost item and no capital item in their calculations. Outsiders, on the other hand, will be faced with higher production cost (by paying royalties for the use of the patented process or by using other, more expensive, processes) or with lower proceeds from a non-protected, less popular product. Thus, no positive net surplus will attract newcomers, while a positive net surplus, imputable to the patent rights and, therefore, of the nature of monopoly rent, may be counted on by the insiders.

More examples are perhaps appropriate. Insiders may have secured important tax exemptions when they started the industry. (Many American communities, at certain times, have granted such exemptions; various European countries have built up new national industries under the attraction of tax remissions.) Similar tax privileges are not available to later entrants. Hence, potential newcomers will have to figure with higher tax expenditures than the fortunate insiders. The differential advantage of the insiders may be maintained for a long time.

Insiders may have formed an association which secures them certain advantages not available to any newcomers. Or, newcomers would have to become members of that association by payment of high initiation fees. Insiders may operate under licences or permits or certificates of skill, once acquired at no cost. Newcomers would have to acquire those licences, permits or certificates at a cost, for instance, through payment of fees or bribes. In all these and similar cases we might find that no positive net surplus is anticipated by outsiders, because they must calculate with the cost of overcoming the barrier against entry; at the same time the insider may reckon with a handsome rent, attributable to that right or privilege which protects him against newcomers' competition.

18. The Economist's Dissenting Calculation

The only difference between cases under *C* (3) and cases under *D* is in the insiders' calculation. In the insiders' calculations of type *D* the positive net surplus is made to disappear through a transformation of the specific rents either into business expenses or into normal return on business assets. The rent character of the respective part of the total revenue can then be revealed only by an "objective" analysis of all expense and capital items, which is to ascertain that no item exceeds the opportunity cost of the necessary resources to which it refers.

An easy illustration is provided by adapting the patent-right example of type *C* (3) to the present constellation. Let the patent rights be owned by another person or firm, e.g. by one of the stockholders or by a holding company, and let the producing firm be licensed by, and pay royalties to, the patentee; the net surplus, as calculated by the insider, may no longer be positive. The specific rent earned through the exclusion of new competitors is transformed into a business expense. The tentative calculation by the outsider yields no surplus, because he is barred from using the patented method or from making the patented product. The calculation by the insider yields no surplus either, because he must pay royalties for the use of the patent. But the economist's calculation will yield a net surplus over the sum of all opportunity costs of all the necessary resources used.

The same effect which is achieved by transforming a specific rent into a business expense can be achieved by capitalising it into a business asset. Still exemplifying with our patent case, let the producing firm purchase the entire patent rights at their full value, which is of course nothing but the capitalised rent income; the patent rights will become an asset in the books of the firm, that is to say, the investment of the firm will include an amount which is not "opportunity cost of necessary fixed resources" but merely "capitalisation of expected rent"; by calculating "normal return" on this investment just as on all the other invested funds, the "cost" figures of the enterprise will be raised by an amount which equals the monopoly rent; the net surplus will have disappeared. The ratio of net income to capital will no longer be supernormal, according to the insider's calculation. It will still be supernormal in the economist's computation. The economist, interested in the surplus above the opportunity costs of resources, will still exhibit the net surplus which is earned in the enterprise thanks to the barriers against new competition.

Barriers may be erected against the entry of new enterprise, as is the case with patent rights, legal monopolies, franchised or licensed firms, etc., or they may be against the entry of needed resources. The difference should be obvious: a barrier against more firms entering the industry may create a "scarcity value" of the product in excess of the combined values of all resources used in its production; a barrier against more of certain resources entering the industry may create greater scarcity of the product along with, and consequent upon, the increased scarcity of the resources the entry of which is obstructed.

Examples would be trade unions shutting out competing labour groups and maintaining a wage rate in excess of the opportunity cost of the particular quality of labour; trade associations excluding competing materials or instruments; professional associations restricting the admission to professional schools or the granting of certificates or occupational licences; organised pools regulating the supply of certain raw materials for certain purposes. All these and similar devices can create an artificial scarcity of the labour, material, instrument, or skill in question, thereby raising the value which these factors or resources have to the industry above their respective opportunity costs. The payments for the scarce resources or services will be costs in the calculations of outsiders as well as of insiders. These payments, however, are "excessive" in comparison with what the services or resources in question could earn in other uses and in comparison with what would have to be paid for substitute services or resources if these were not artificially kept out; in recognition of this, the economist will consider these payments not as *cost* but rather as *rent*.

That such apparent cost items of the firms concerned are essentially monopoly rents may be more obvious in the case of resources owned by the producing firms themselves or by some of its stockholders or by an affiliated company. The price paid for a scarce metal purchased from an affiliated company is clearly cost in the bookkeeping sense and may absorb any possible net surplus of the possessing firm. If that price is in excess of the opportunity cost of the metal, or in excess of the opportunity cost of the services needed for its extraction, it contains rent. This rent may be largely due to artificial restriction of the use of the metal in the industry, and, therefore, may have the character of monopoly rent.

Where firms own natural resources and calculate among their cost depletion of these resources, and where this depletion is based upon a valuation of the resources which in turn is derived from the scarcity value of the extracted material, the cost in question may contain a generous admixture of monopoly rent.[1] Hence, without positive net surpluses resulting from outsiders' or insiders' calculations, the economist's computation will have to exhibit a net surplus; a net surplus, or rent, which will be attributable to resources which are scarce by nature but possibly made still scarcer by restrictive policies.

19. Artificial Scarcity and Monopoly Rent

In the last analysis, pliopoly is to be understood in a wider sense than that referred to in the outset, namely, not merely connoting easy entry of enterprise but also absence of artificial restrictions of the entry of (natural, human or man-made) resources. With pliopoly absent, pure profits, monopoly rents and excessive factor prices can arise and last over extended periods. All three are earnings in excess of opportunity costs.

All rents are the result of scarcity and are earnings in excess of opportunity costs, but not all rents are monopoly rents. On what grounds may we call certain rents "monopoly rents"? We have chosen the element of human control as the criterion distinguishing artificial scarcity from natural scarcity. This is by no means a clean-cut distinction, especially since the effects of institutional factors of old standing may be considered "artificial" as well as "natural", depending on one's point of view. Here seems to be one of those issues where value judgments enter into what might be thought of as judgments of fact. The dividing line between the natural and the artificial can perhaps be set through a mental experiment, asking what type of action (or omission) would be capable of remedying the situation, that is, in the particular case, of decreasing the scarcity of the resource in question. If we had to imagine a change in the tastes and idiosyncrasies of consumers or workers or a change in the knowledge of the technical arts, discoveries or indeed an act of God, as the only ways of removing or reducing a scarcity—then we should not hesitate to consider it "natural". On the other hand, if we thought that the supply of the scarce resource could be readily increased by something like a "cease-and-desist" order or by the removal of some "interference" or "restriction" or "privilege"—then the scarcity would seem "artificial". (Of course, there may be many cases where a decision would not be easy by any means.)

Let us for purposes of illustration take the case of a special skill. The men who possess it receive a high price for their labour. Outside of the particular industry there is no use for the special skill and its owners could not earn more than the price of common labour. Thus, the earnings of the skilled men in the particular industry contain an ample amount of specific rent because the price of the labour is in excess of its oportunity cost. If all men who possess the skill can find employment in the industry which can use it, and if men who are capable of acquiring the skill are not restrained from doing so, then the rent of the scarce resource is not a monopoly rent. The scarcity is a natural one. If, however, men who possess the skill are kept out from the industry which may have use for it (at reduced wage rates) and have to work elsewhere at lower wages—while the men who do find employment in their trade continue to earn high wages—or if men who are capable of acquiring the well-paid skill are restrained from doing so, then the high price paid for the skilled work contains monopoly rent. The scarcity is artificially increased.

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[1] *Cf.* Joe S. Bain, "The Profit Rate as a Measure of Monopoly Power," *Quarterly Journal of Economics*, Vol. LV, 1941, pp. 285–6.

The criterion is, thus, that perfectly substitutable resources would be available at lower prices were it not for certain barriers ; barriers which were probably deliberately erected and could probably be removed by appropriate anti-monopoly measures. In the majority of cases such measures, designed for easy entry of resources into better-paid uses (jobs), are not popular ; vested interests are too firmly intrenched and are defended by well-sounding slogans, such as " safeguarding against inferior services ", " preserving the jobs for the local people," " keeping out unreliable elements, strangers, aliens," " protecting the living standard of the profession," " selecting only the best material," etc. But even if the interests of the insiders are found to be worthy of protection, or if such protection is found to be in the interests of the consumer or the community or nation, it remains a monopolistic position and should be called so—unless one prefers tō call monopolistic only those positions which he dislikes and to avoid the epithet for positions which he favours.

The term " monopolistic " has now been used as the opposite of " pliopolistic ". In other contexts, it has been used as an opposite of " purely polypolistic " and again in other places as an opposite of " oligopolistic ". This is a rather unsatisfactory state of terminological affairs, but there seems to be no way out. The absence of what we called here pliopoly—or a low degree of it—has always been called monopoly and it would be useless to crusade against this usage. All that can be hoped for is increased consciousness of the various connotations of monopoly. Monopoly as *non-pure competition* (differentiated polypoly and oligopoly) is something altogether different from monopoly as *obstructed entry* (non-pliopoly). The idea common to both is that the allocation of resources to a certain use, either within a firm or within an industry, falls short of what is considered the competitive norm.

Maintaining Capital Intact: a Further Suggestion

By J. R. Hicks

To intrude upon a controversy being waged by such paladins as Professor Pigou and Professor Hayek seems an act bold even unto rashness; but the question of maintaining capital intact just cannot be left where they left it last summer. The present note will have justified itself if it serves to provoke them to another round.

At the point which has now been reached, Professor Pigou has offered us a carefully constructed method of measuring capital; it is based upon a comparison of physical units *in use* at the two dates which are being compared, the different sorts of capital goods being reduced to a common measure by using their relative values at the *latter* of the two dates. This principle of Professor Pigou's stands up very well to most sorts of criticism, but it has (I think) been torpedoed by Professor Hayek. His example of the firm which produces fashion goods, installs machinery which it plans to use for a limited period and then to scrap before the machinery is physically worn out, establishes conclusively that there are instances where the physical maintenance of capital would not suffice to ensure the maintenance of capital in an economic sense. If the second of our two dates was taken just previous to the time when the specialised machinery is discarded, the fact that the equipment would still be there, technically almost as good as new, would not prevent the firm from needing to have set aside amortisation allowances for almost the whole original value of the machinery, if it was to have maintained capital intact in any significant sense. A satisfactory definition of maintaining capital intact has got to be able to deal with this case, and it seems clear that Professor Pigou's cannot do so.

Professor Hayek, on the other hand, having demolished the rival construction, fails (in my view) to provide anything solid to put in its place. His definition of net income (constructed so as to avoid the necessity of defining the maintenance of capital *en route* for the definition of net income) contains far too many subjective elements to be usable in practice, and is much more at home in those simplified models beloved of economic theorists than it is when it seeks to put on flesh and blood. As we widen our assumptions to bring them nearer reality, the more tenuous does a definition by " constant income stream" become. In a world in which expectations were *certain* (by *certain* I do not mean necessarily *correct*) the definition by constant income stream would be eminently reasonable; but when we allow for uncertainty of expectations it soon becomes unrealistic, or rather it has to be metamorphosed into something else.[1]

In what follows, I shall try to suggest what that something else is. For certain purposes, at any rate, it turns out to be something not very far removed from Professor Pigou's definition, though it is inevitably not the same as Professor Pigou's definition. But it is near enough for me to have some hope that he may be willing to accept it as a possible modification.

I must emphasise the qualification "for certain purposes". I feel rather strongly nowadays that most economic controversies about definition arise from a failure to keep in mind the relation of every definition to the purpose for which it is to be used. We have to be prepared to use different definitions for different purposes; and although we can often save ourselves trouble by adopting compromises, which will do well enough for more than one purpose, we must always remember that compromises have the defects of compromises, and in fine analysis they will need qualification. It is not profitable to embark on the fine analysis of a definition unless we have decided on the purpose for which the definition is wanted.

The purpose I have in mind is the measurement of the Net Social Income. It seems clear that this is the problem which is in Professor Pigou's mind too. I am not sure about Professor Hayek; it may be that he is thinking of a different problem, and that the argument is thus proceeding to some extent at cross-purposes. In any case, I shall do no more than suggest a definition which I consider to be appropriate for defining the ideal measurement of the Net Social Income; it needs a separate investigation to determine whether it is suitable for other purposes as well.

2. The way in which the problem is conceived by Professor Pigou is (I think) this. His ultimate object is the measurement of the Net Social Income in real terms; all the magnitudes in his fundamental identities are to be taken in such senses that they can be converted into real terms by a suitable multiplier. When he writes

$$\text{Net Income} = \text{Consumption} + \text{Net Investment}$$

the various terms in the equation may be measured in terms of money, but we have only got to choose our units properly, and they would be capable of being understood in real terms. The definitions have got to be chosen so as to make this transformation possible. At once we run into the difficulty that if Net Investment is interpreted as the difference between the value of the Capital Stock at the beginning and end of the year, the transformation would not be possible. It is only in the special case when the prices of all sorts of capital instruments are the same (if their condition is the same) at the end of the year as at the beginning, that we should be able to measure the money value of Real Net Investment by the increase in the Money value of the Capital stock. In all probability these prices will have changed during the year, so that we have a kind of index-number problem, parallel to the index-number problem of comparing real income in different years. The characteristics of that other problem are generally appreciated; what is not so generally appreciated is the fact that before we can begin to compare real income in different years, we have to solve a similar problem within the single year—we have to reduce the Capital stock at the beginning and end of the year into comparable real terms.

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[1] When I wrote *Value and Capital*, Chapter XIV, I was myself an adherent of the Hayekian school on this matter, so I can appreciate the qualities of Professor Hayek's definition. I can also appreciate what Professor Hayek must feel about the quite unfounded accusation by Professor Pigou that the definition by constant income stream is a definition of gross income.

This, I think, is how the problem has appeared to Professor Pigou; Professor Hayek's substantial reply is to deny that the problem of comparing *capital* at different dates is an index-number problem. The comparison of capital values at the beginning and end of the year is not the same kind of thing as the comparison of the prices of consumable goods in different years; for the price of a durable good at one date is related to its price at another date in a way in which the prices of different (albeit similar) consumable goods at different dates are not. The price of a house in January, 1941, is largely based upon an estimate of what its price will be in January, 1942; but the price of a loaf of bread in one year is influenced by expectations about the price of bread in another year to a usually negligible extent.

The value of a capital good at any particular time is based upon the anticipated quasi-rents which it will earn during its future " life ". (This " life ", it should be noticed, does not only depend upon the physical durability of the good; it also depends upon the length of time for which it is expected to be useful.) Since it will be implicit in such expectations that the article will have some capital value at each date during its life, we may say that the capital value at the beginning of the year depends upon the quasi-rents the article is expected to earn during the year, and the capital value it is expected to have at the end. In practice, these expectations must be interpreted in a sense which allows for risk; but however we allow for risk, the proposition that capital values at the beginning and end of the year are intimately related magnitudes still holds.

The suggestion I desire to make here is that we can allow for this intimate relationship without sacrificing the general approach which Professor Pigou is naturally determined to preserve. A way of doing so has been indicated by the Swedish economists, particularly Professor Lindahl.[1] In their presentation it has been mixed up with other elements which are perhaps less acceptable. My contention is that we can use Professor Lindahl's solution of this problem without at the same time swallowing more than we like of his *ex ante - ex post* constructions for use in our theory of the Trade Cycle.

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[1] *Theory of Money and Credit*, Part I, " Algebraic Discussion ".

3. The changes which may have taken place in the price-level of capital goods are not the only reason why the difference between the money value of an article at the beginning of the year and its money value at the end will not do as a measure of depreciation; the underlying reason why this measure will not do is that the beginning-value and end-value were arrived at on a different basis of knowledge. When a particular article from the Capital stock was valued in January, there was implicit in that valuation an estimate of what the value would be in December; but the December value which is used for calculating the year's depreciation is not an estimate in the same sense—December is now past, so we *know*. If C_0 is the value of the Capital stock at the beginning of the year, C_1 the value of these same goods at the end, then to measure Depreciation by C_0-C_1, and Net Income by

$$\text{Consumption} + \text{Gross Investment} + C_1 - C_0$$

is internally inconsistent. The figures for consumption and gross investment will be based upon the actual historical events of the year; the figure for C_1 also takes into account the actual events of the year, though it is still influenced by uncertainty about what will happen when the year is over; but the figure for C_0 was arrived at when the events of the year were still in the future. As far as the events of the year in question are concerned, Consumption, Gross Investment and C_1 all shine in the light of history; but what is history for them is shrouded for C_0 in the mists of futurity. In order to get a true measure for depreciation, hence for net investment, and hence for net income, C_0 must be brought out into the light too.

Let us then define the depreciation of the original stock of capital as the difference between the total value of the goods comprising that original stock as it is at the end of the year (C_1) and the value (C_0') *which would have been put upon the initial stock at the beginning of the year if the events of the year had been correctly foreseen, including among those events the capital value C_1 at the end of the year.*[1] Net income is then

$$\text{Consumption} + \text{Gross Investment} + C_1 - C_0'.$$

This, I think, is the Swedish definition of *ex post* income; unlike their definition of *ex ante* income, which presents difficulties of interpretation in a world of uncertainty, the definition of *ex post* income is no harder to apply in a practical case than any other method which has been suggested for dealing with the problem of depreciation.

The corrected value for the initial Capital stock is of course not easy to arrive at; but what we need is not this corrected value, but the consequential figure for depreciation ($C_6 - C_1$). We can proceed to estimate this by distinguishing, of the various experiences which the initial capital goods will have had during the year, which sorts will cause a divergence between C_6 and C_1. These are the things which will cause true depreciation. By applying the rule to each case as it comes up we ought to be able to discover them.

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[1] It should be noticed that this supposed foresight only extends to the events of the year under discussion; later events are still in the dark at the end of the year, so they must be left in the dark when we are constructing our corrected figure for the initial capital.

4. In nearly all the cases where I have been able to try it out, the Swedish definition gives eminently sensible results. They are not always the results which might have been expected beforehand, but they are always intelligible, and they stand looking at from several points of view. Let us check over a few of them.

Normal wear-and-tear in the course of production is clearly a reason why the value of a capital instrument should be greater at the beginning of a year than at the end, even if the final value was foreseen accurately. Normal wear-and-tear is therefore an element in true depreciation. So is exceptional wear-and-tear, due to exceptionally heavy usage; if the exceptionally heavy usage had been foreseen, the gap between the beginning-value and the end-value would have been larger. On the other hand, any deterioration which the machine undergoes outside its utilisation does *not* give rise to true depreciation; if such deterioration had been foreseen, the initial capital value would have been written down in consequence; the deterioration is therefore not depreciation, but a capital loss. If a machine remains idle throughout the year, any deterioration which it undergoes is therefore not depreciation, but capital loss; and the use of productive resources to maintain the idle machine in good condition is net investment. This last result may appear surprising at first sight, but it is only reasonable when one thinks it over; the fact that the machine may have produced some output in the past is irrelevant; the " maintenance " work done in the present is not a contribution to current final output, but to the final output of future years.

Obsolescence of the kind described in Professor Hayek's example is true depreciation on our test; the fashion firm scraps its machinery in accordance with anticipations; it is not failure of foresight which makes the end-value less than the beginning-value. But most problems of obsolescence do arise from imperfect foresight. The allowance for obsolescence which firms reckon among their costs is for the most part a reflection of their uncertainty about the value of their equipment at the end of the year; once this value is assumed known, the necessity for such obsolescence allowances disappears.

5. The definition of net income which I have been describing is, I think, in complete accordance with that proposed by Professor Hayek; in all cases where they can both be employed they would give the same results. There are certain instances, however, where the difference between the consequences of the Swedish definition and those of Professor Pigou's definition become striking. One of

these is the obsolescence case, which has been referred to; another is the case of a capital instrument, which is not used during the year, but also suffers no physical deterioration or technical supersession. Professor Pigou would (I think) say that in such a case capital is maintained intact; on the Swedish definition (and also on Professor Hayek's) there is accumulation of capital. For, assuming the end-value to be known, the beginning-value would be the discounted value of the end-value, that is, less than the end-value. Although it remains idle, nevertheless the instrument yields a net income. This looks absurd, particularly in the case of involuntary idleness (if the instrument is deliberately held over, it is more intelligible that it should earn an income by being deliberately devoted to the satisfaction of future wants). The involuntary case becomes a little more intelligible when we notice that it is almost inevitable for involuntary unemployment of a capital instrument to be attended by a capital loss during the year considerably in excess of the income earned. ($C_0' < C_1$ but $\mathrm{C}_0 > \mathrm{C}_1$.) It is thus not surprising that the business man should pay little attention to such " income ", but it does not follow that the economist should not pay more attention.

I have a strong feeling that the reason why Professor Pigou answers these borderline questions in a different way from that in which they would be answered by Professor Hayek, Professor Lindahl, or myself, is because he is primarily thinking of the measurement of Real National Income as a means of comparing economic welfare in different periods. As I have shown elsewhere,[1] such comparison is only possible if one is prepared to assume that the wants of the community (their utility or indifference functions) are the same in each of the periods; nor does it seem possible to make much allowance when making these comparisons for the hopes and fears of different future conditions which exist in each of the periods. So long as one sticks to the welfare problem, Professor Pigou's definition of maintaining capital intact will do very well; the borderline cases will not come up. But comparing economic welfare is not the only purpose (nowadays, alas! it is not even the main purpose) of measuring the National Income.

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[1] "The Valuation of the Social Income," ECONOMICA, 1940, pp. 107 ff.

The Goldsmids and the Development of the London Money Market during the Napoleonic Wars

By S. R. Cope

> "*I dislike the very name of money market.*"
>
> —Samuel Whitbread.

> "*In this country, distinguished for its wealth, its commerce and great necessary expenditure, there must be a money market, and this I apprehend is not to be accounted a very bad thing . . .*"
>
> —Wm. Pitt.[1]

It cannot be said that the 22 years which elapsed between the declaration of war by France in 1793 and the Battle of Waterloo in 1815 have been neglected by economic historians. Indeed, few periods in English currency history can have received such intensive treatment. This is due not only to the undeniable importance of the monetary developments which were taking place at that time, but also to the large amount of information on current banking practice contained in the reports of the various committees appointed to examine the monetary system, and to the extensive pamphlet literature which the currency controversies of the period provoked. This material has been used to good purpose, and on the development of the theory of central banking and currency control there is perhaps little more to be said—at any rate until further material is made available to students of banking and currency history.

The study of the institutions comprising the London money market, on the other hand, has been relatively neglected. This is due in part to the fact that in most cases the books and other records of the institutions concerned no longer exist, or if they do exist they are not available to students. Such material as is available is fragmentary and scattered and its collection involves considerable labour. Some day, perhaps, an adequate account of the London market of the period may be written; meantime the ground can be prepared by the study of the activities of individual firms.

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[1] *Parliamentary Debates*, Vol. V, 14th June, 1805.

The several hundred individuals and firms which made up the London money market at the close of the eighteenth century fell into several groups. At the centre was the Bank of England, a private institution torn between a desire to make as much profit as possible for its proprietors and a reluctant recognition of its duties as a central bank. London bankers—some 70 in number—had been allowed to have accounts with the Bank of England since 1797, thus giving tacit recognition to the fact that their respective spheres were complementary rather than competitive. The bankers had in fact long since found it impossible to compete with the Bank of England in the issue of notes and were relying successfully on deposit business. The Bank's relationship with the bankers, however, was as yet undeveloped ; on the other hand, its relations with the London merchants were of the closest. Practically every mercantile house of any importance kept an account with the Bank. Bank stock was extensively owned by merchants, and it was from an inner circle of influential merchant firms that the Bank's directors were drawn. The operations of these firms were not restricted to merchandise ; they dealt in bullion, discounted bills of exchange, negotiated foreign drafts and remittances, underwrote insurance risks, jobbed in the funds and contracted for public loans. Many, such as Sir Francis Baring & Co., were almost as much bankers as merchants and played an important part in the money market. Acting as intermediary between merchants and bankers were some 700 licensed brokers who assembled on the Royal Exchange. Stock brokers who dealt in the funds and in the shares of the few joint stock companies had long ago left the Royal Exchange and had a meeting place of their own in Capel Court.

The dividing line between these various groups was in practice not always clear. Merchants would sometimes act as bankers ; brokers might act as merchants or factors. The firm of Benjamin and Abraham Goldsmid provides an excellent example of this absence of specialisation. They were referred to at various times as bill brokers, money dealers, loan contractors, dealers in the funds, monied men, merchants and so on. They were in fact all of these. Had they lived fifty years later they would have been described as merchant bankers. As it was they usually called themselves simply merchants.

Their father, Aaron Goldsmid, had been a merchant. A native of Holland, he had settled in London shortly before 1750,[1] living first in Gun Yard, Houndsditch, moving later (in 1768) to Leman Street, Goodmans Fields. He had four sons, George, Asher, Benjamin and Abraham, and four daughters. He took his eldest son George into partnership around the year 1773 and they carried on business as merchants, in the name of Aaron Goldsmid and Son. Little is known of their business, but they retained their connections with Holland, and like so many other mercantile houses of Dutch origin settled in

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[1] Alexander, Levy, *Memoirs of the late Benjamin Goldsmid* (1808), p. 5, gives 1765 as the year when Aaron Goldsmid left Holland, but his name appears in London directories from 1749.

London, they dealt extensively in drafts and remittances on Amsterdam—then the most important money market in Europe—and on Hamburg and other German towns. In the 'nineties the foreign exchange side of their business seems to have predominated, for Daniel Eliason, who became a partner in 1790, described his business in 1797 as being in " the bill of exchange line " with Hamburg and all over Germany.[1] They were heavily involved in the failure in 1773 of Clifford and Sayer, one of the foremost houses in Holland, and this may have been the reason why the other brothers did not join their father's firm. Asher, the second son, secured the coveted medal which was the mark of a licensed broker and entered into partnership with Abraham de Mottos Mocatta, who was bullion broker to the Bank of England.

In 1768 the third son, Benjamin, then 13 years old, was sent to Amsterdam to make the acquaintance of members of the family in Holland and to gain business experience. He returned a few years later and entered into partnership with the youngest of the brothers, Abraham, in 1776, commencing business at 25, Leman Street, under the name of Benjamin and Abraham Goldsmid. In response to suggestions from some of their friends, they decided to undertake the business of bill brokers, " the middle man between the merchant and the monied interest, a concern wholly unknown on the Royal Exchange until that time ", as Benjamin's biographer explains thirty years later.[2] They can thus claim to be the first of the London discount houses.

It must not be assumed, of course, that prior to this time there were no intermediaries concerned in the discounting of bills. Buyer and seller were frequently brought together by a broker, but not by a broker who specialised in the discounting of bills. Since bills were usually drawn in connection with transactions in merchandise, the most natural course was for the brokers who had dealt with the merchandise to dispose of the bills received in payment therefor and this was in fact the general practice until the early years of the nineteenth century.[3] This is why the term " bill broker " did not come into general use before 1800.[4] For transactions in bills between parties in London the unspecialised broker met the need. In the provinces, bankers and the larger mercantile firms had London agents through whom their bill transactions were negotiated. There is no evidence that brokers usually acted as London agents for country banks prior to 1810. Thomas Richardson, giving evidence before the Bullion Committee, denied that country bankers in general kept agents in London exclusive of the bankers on whom they drew,[5] although there were exceptions, the case of Richardson himself being the most important.[1]

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[1] *Lords' Committee of Secrecy*, 1797, p. 56.

[2] Alexander, L., op. cit., p. 16.

[3] *London Tradesmen* (1819), p. 275.

[4] The earliest printed reference traced was Montefiore, J., *Traders and Manufacturers Compendium* (1804), p. 141.

[5] *Minutes of evidence*, 26th March, 1810.

Since brokers had been concerned among other things in the negotiation of bills, it might be expected that when the need for a specialist intermediary became apparent, some brokers would cease dealing in merchandise and foreign drafts and remittances, and specialise in arranging for the discounting of bills of exchange. This did not happen and the reason seems to have been legal rather than economic. Brokers had been subject to regulation from the time of Edward I, and in the eighteenth century those practising in the City of London were subject to regulations laid down by the court of aldermen under powers conferred on the City by various Acts of Parliament. The rules were strict. To obtain a licence a broker had to satisfy the court as to his skill and competence in the particular trade in which he sought to act, and had to enter into a bond in the penalty of £1,000 and find two approved sureties of £250 each. In the bond he undertook to enter all contracts he made in a " broker's book ", to produce on request a silver medal as sign of his competence to act, to refrain from acting as principal, to limit his remuneration to the customary brokerage, and not to take commission from both buyer and seller. A licensed broker was forbidden to carry on any other business.[2] Under a regulation of the court of aldermen the number of Jew brokers was limited to twelve and the silver medal which was transferable sold generally at between £800 and £1,000 exclusive of the expenses of transfer.[3]

There was, however, no penalty for acting as a broker without being licensed, and the fact that an unlicensed broker could not sue for his brokerage or give evidence in a court of law proved insufficient to prevent unlicensed brokers from practising. In certain trades, unlicensed brokers outnumbered licensed brokers.[4] The trend of the times was towards freedom rather than regulation, and it was natural, therefore, that entrants to a new branch of trade unfettered by conventions and customs should avoid unnecessary restrictions. Why not be free to carry on other activities, to deal on occasion as principal instead of being merely an agent, and be free to make more than the modest $\frac{1}{8}$ per cent. brokerage allowed to licensed brokers on bill transactions ? And if the advantages of being licensed were outweighed by the onerous obligations which that status entailed, there was little object in taking the label of broker at all. A merchant had a higher status than a broker—even a licensed broker—and was completely free to engage in any lawful mercantile or financial operation that appeared profitable.[1] Such considerations, added to the peculiar difficulty for them as Jews of obtaining a licence, were no doubt responsible for the decision of Benjamin and Abraham Goldsmid to style themselves merchants. Their business, however, was at the outset chiefly that of bill brokers.

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[1] King, W. T. C., *History of the London Discount Market* (1936), p. 8, says : " There is good reason to believe that the beginning of bill broking on true nineteenth century lines was contemporaneous with the rapid growth of country banking : that bill brokers proper began to operate for banks shortly after 1750 ". It is, however, no evidence of any pre-nineteenth century activities on these lines, although such may have existed. King seems to overstress the case when he says (p. 9), " By 1810 . . . the bill broker agency system for the country banks was widespread."

[2] Full regulations are given in Pulling, A., *The Laws, Customs, Usages and Regulations of the City and Port of London* (1854), Ch. XXIV.

[3] Montefiore, J., *Commercial Dictionary* (1803) ; Article : " Brokers ".

[4] This was particularly true of stockbrokers.

Whether they also dealt in merchandise is uncertain. Their name appears in 1798 among the subscribers to Sequira's *A New Merchants' Guide*, which consisted chiefly of import and export regulations, but it cannot be assumed from this that they were engaged in overseas trade. Such activities could have been carried on in only a small way, if at all.

Having overseas connections, however, placed them in a good position to deal in foreign drafts and remittances. Amsterdam was still the pre-eminent money market in Europe, although the international importance of London was increasing, and the Goldsmids maintained a correspondence not only with members of the family in Amsterdam, but also with such houses as Abraham and Simeon Boas of the Hague.[2] Details of their foreign exchange business are lacking, but it is evident that they engaged in extensive foreign transactions. In 1802 it was said that " they were honourably and extensively known on the continent as merchants particularly in the line of exchange, in which lucrative branch of merchandise the Goldsmids are unrivalled ".[3] Their reputation was such that even at a time when France and Britain were at war the French banking house of J. M. Lemaitre et Cie did not hesitate to pay for the honour of the drawers a draft for £1,000 which the Goldsmids had drawn on a Paris house which failed before the draft matured.[4]

As time went on, however, they seem to have left the foreign exchange business to an increasing extent to their late father's firm, in which their brother George was still a partner and which was also established at 25, Leman Street.[5] The war with France inevitably restricted foreign exchange operations, and provided the Goldsmids with an additional reason for devoting their attention to the domestic money market, which was developing rapidly under the inflationary influences of war finance.

The year 1792 was a landmark in the firm's history, for in that year the brothers moved from a house in the close and cramped Jewish quarter to more spacious premises in Capel Court, within a stone's throw of the Bank of England and the Royal Exchange, and the move was the outward sign of the growing prestige and importance of the firm. Henceforth the Goldsmids were in the heart of the City—and not merely in a geographical sense. Their wealth had increased, not only through their assiduous devotion to business. They had gained large sums in lotteries. An uncle in Holland died leaving them £15,000; their father left them money when he died in 1781, and Jessie Salomon, the daughter of a wealthy East India merchant, brought with her a dowry of £100,000 when she married Benjamin shortly afterwards. The amount of their capital at this period cannot be estimated with any accuracy. A decade later it was referred to as "princely" and a figure of £500,000 was named,[1] but this was nothing more than a guess.

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[1] " Brokers in extensive practice are frequently termed merchants by courtesy; many indeed are so in reality—whilst some profess to be both merchants and brokers, however incompatible the two occupations may be according to law ". *London Tradesman* (1819), p. 254.

[2] Huish, Robert, *Memoirs of George IV* (1830), ii, p. 137.

[3] *Public Characters*, 1802/3, p. 50.

[4] *The Tradesman or Commercial Magazine* (1810), p. 439.

[5] Aaron Goldsmid died in 1781 and shortly after Daniel Eliason was admitted to partnership and the style of the firm became A. Goldsmid, Son and D. Eliason. Daniel Eliason was Abraham Goldsmid's brother-in-law, and as an expert on foreign exchange gave evidence before the Commons' Committee of Secrecy, 1797.

They had not only acquired wealth, they had also made useful friends. Among them was the chief cashier of the Bank of England, Abraham Newland, who had his private apartments in the Bank just opposite the entrance to Capel Court. They had the ear of William Pitt, who was said to have placed great value on their judgment. They acted as advisers to Lord Yarmouth on stock exchange matters, and later helped to straighten out the tangled finances of Lady Hamilton. For a spendthrift Prince of Wales (who afterwards became George IV) and his brothers they raised money in Holland, and their services were extended to many crowned heads of Europe. King George III and Queen Charlotte honoured them by a visit to Benjamin's mansion at Roehampton.[2]

Even in their early days in Capel Court the Goldsmids had an extensive connection as dealers in bills. In 1791 and 1792 they were discounting bills at 4 per cent. per annum, charging ⅛ per cent. to the person they discounted them for and a similar amount to the banker or merchant who bought them,[3] and this would imply that at this time they were still acting as brokers and not dealers (i.e. as agents and not principals). It appears, however, that they also dealt as principals, for it was remarked that "in 1794 when almost every mercantile house felt the most baneful effect from the most unprecedented number of bankruptcies which took place in that period, their loss amounted to only £50, notwithstanding the large discounts made by the firm".[4] If at this time they were acting merely as brokers they would have had no need to endorse the bills which passed through their hands, and they would consequently not have been liable in the event of the failure of the acceptor, and the comment would have had no point.[5]

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[1] *Public Characters*, 1802–3, p. 60, p. 62.

[2] *The Tradesman or Commercial Magazine*, 1810, p. 437.

[3] *The Bank—the Stock Exchange—the Bankers,—etc.* (1821), p. 42. The author (said to be J. Lancaster, who was broker to a banking house which failed in 1806) presents an invaluable inside view of the Stock Exchange and money market of the period.

[4] *Gentleman's Magazine*, October, 1810, p. 383.

[5] It is hardly likely that they acted as brokers, but guaranteed the bills which passed through their hands.

London bankers apparently dealt extensively with the Goldsmids, and it became the practice for bankers having surplus balances to send to Goldsmids and select from their portfolio bills which they bought at a rate which fluctuated between 4 per cent. and 5 per cent. per annum according to market conditions. The bankers, if subsequently pressed for cash, had only to send bills to Goldsmid to replenish their cash reserves.[1] Thus 20 years before Richardson, Overend & Co. were somewhat hesitatingly acting as dealers in a small way,[2] the Goldsmids were evidently conducting a large dealing business in bills.

This early development of a dealing business in bills took place during the period of cheap money in the early 'nineties. Discount rates applied by the Bank of England and the private banks changed rarely and usually the rate was 5 per cent. The maximum rate of interest which the usury laws allowed was also 5 per cent., but it was lawful to pay a brokerage for procuring the discount of a bill, in addition to the 5 per cent. discount itself, provided that the brokerage did not go directly or indirectly to the person discounting the bill. Thus as long as bankers and other persons wishing to employ funds in the discount of bills could satisfy their needs of 5 per cent. there was no scope for an intermediary who acted as principal, for it would be unlawful for him to buy bills at a higher rate than that at which he sold. When, however, pressure of money compelled bankers to discount at lower rates, a dealer might buy, say, at 4½ per cent. and sell at 4 per cent., and the development of a profitable bill dealing business became possible.

The rise in interest rates which came after 1793 arrested this development, and, like other merchants,[3] the Goldsmids turned their attention to short term government securities such as Exchequer bills and navy, transport and victualling bills. Exchequer bills were first issued in 1696 and had proved so convenient a means of raising money that in the latter part of the eighteenth century they were issued every year to meet budgetary deficiencies. They were negotiable instruments transferable by endorsement, and endorsed in blank they passed from hand to hand as bearer instruments. Their currency varied; sometimes they ran for three months, sometimes for a year, sometimes for several years, holders having the right during their currency or during part of their currency to use them in payment of taxes or other sums due to the Exchequer. They carried interest at rates published from time to time in the *London Gazette*, the rates being varied according to monetary conditions. Usually it proved impossible to pay them off out of revenue, and holders were invited to fund their bills, i.e. exchange them for a specified amount of one or other of the loans forming part of the funded debt. Although they fulfilled the same purpose as Treasury bills do to-day, they were in form more like modern Treasury bonds. They were dealt in on the Stock Exchange and were quoted at so much per cent. premium or discount on their face value. In addition to the quoted price a seller receive the accrued interest, less property tax, from the date of issue of the bills to the date of their sale.[1] Modern writers, misled by the term "bill", have referred to Exchequer bills being "discounted" as though they were bills of exchange.[2] In fact they were "sold", not "discounted". The distinction is important in that bills of exchange came under the Usury Laws which prevented their being discounted at a rate above 5 per cent. per annum, so that in times of monetary stringency they could not be realised for cash. Exchequer bills, on the other hand, were regarded as a Stock Exchange security which could be bought and sold like any other stock, and there were times when they could be realised and bills of exchange could not. Early in 1797, for example, three months Exchequer bills bearing interest at 3½d. per cent. per diem (approximately 5¼ per cent. per annum) were sold on Government account to the extent of over a million pounds at a price which gave a yield to the buyer of 6¼ per cent. A few weeks later, immediately prior to the Order in Council suspending cash payments, when only a small proportion of the bills tendered to the Bank was discounted, Exchequer bills fell to 3 and 3½ per cent. discount (17 to 19 per cent. per annum), indicating that bankers, finding that their theoretically most liquid reserve had become "frozen", had fallen back on Exchequer bills to provide them with the cash they needed.[3] The extent to which Exchequer bills could be sold in periods of monetary stringency must not be exaggerated: there were times when they were virtually unsaleable. Nevertheless they softened the rigidity of the 5 per cent. maximum fixed in the spacious days of Queen Anne and gave flexibility to the money market at a time when it needed it most. Such considerations probably carried little weight with the practical bankers of the Napoleonic age, who were attracted more by the return of 6, 7 or 8 per cent. than by theoretical concepts of liquidity. Still less were they likely to have interested the Goldsmids, intent only on multiplying the many millions which passed so profitably through their hands.

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[1] Lancaster, op. cit., p. 42.

[2] King, op. cit., p. 25.

[3] "There are a few merchants who at some periods have been great discounters, but I believe that they have for some time almost entirely ceased." *Lords' Committee of Secrecy*. 1797. Evidence of H. Thornton.

In addition to carrying on an extensive dealing business in Exchequer bills with bankers and merchants, the Goldsmids also acted as government brokers. Newly issued Exchequer bills were normally either taken by the Bank of England or sold in the market. The Act passed in 1797[4] extending the Bank Restriction Act prohibited the Bank from advancing any sums whatever to the government, but the effectiveness of this measure was nullified by the authority granted to the Bank in almost every Exchequer Bill Act passed subsequently to advance money against the whole or part of the bills issued thereunder. Considerable sums were in fact advanced by the Bank under the authority conferred by these Acts. These advances were effected partly by the direct issue of bills to the Bank under special agreements with the Treasury, and in the 13 years 1798 to 1810 nearly £70 millions were advanced in this way. In addition, the Bank acquired bills by purchase. The Bank seldom, if ever, bought securities at a premium, and accordingly when Exchequer bills were quoted above par, they took the bills at par through Abraham Goldsmid, there being an understanding that such bills would not be resold in the market. When Exchequer bills were at a discount and could not be placed in the market the Chancellor of the Exchequer generally applied to the Bank to buy Exchequer bills, and these transactions too were put through the government brokers.[1] The amounts handled by the firm were large; on one day in December, 1802, for instance, they sold £85,000 of bills to the Bank,[2] and the total must have run into several millions.

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[1] Fairman, Wm., *The Stocks Examined and Compared* (1808), p. 101.
[2] For example, Hawtrey, R. G., *Currency and Credit* (1934), p. 321.
[3] *Commons' Committee of Secrecy*. 1797. Evidence of H. Thornton.
[4] 37 Geo. III, c. 91.

Why it was necessary for a private firm to act as intermediary between the Bank of England and the Treasury is not clear, and the ⅛ per cent. commission they charged seems money very easily earned. It must, however, be considered in relation to the firm's more important work of selling Exchequer bills on government account to bankers, merchants and others. Between 1797 and 1810 some £400 millions of Exchequer bills were issued; of these nearly £70 millions were advanced directly by the Bank, leaving £330 millions, the bulk of which was apparently handled by Goldsmids.[3] Well might Abraham Goldsmid claim that his house dealt "very largely" in Exchequer bills.

During nearly every year of the war period some of the Exchequer bills outstanding would be funded, and Goldsmid & Co. were usually among the houses participating, either on their own account or on behalf of others. The 1810 funding, which incidentally throws some light on contemporary business methods and morals, affords a good example. In March, 1810, the Government had announced[4] that £8 millions of Exchequer bills of specified dates would be received for funding, bills bearing interest at 3½d. per cent. per diem being received first and afterwards those carrying 3¼d. On the occasion of a funding, a crowd of brokers, merchants, bankers and their clerks usually assembled at the doors of the Exchequer Bill Office in Westminster several hours before the advertised opening time of ten o'clock. Abraham Goldsmid, whatever he had done at previous fundings, had no intention on this occasion of undergoing the discomfort of a three hour wait on a cold March morning. He was fortunate enough to have the acquaintance of one of the Paymasters of the Exchequer Bill Office—Sir John Peter—and an arrangement was accordingly made without difficulty. On the morning in question, shortly before ten o'clock, a coach drew up at the private entrance to the Exchequer Bill Office. Abraham Goldsmid and two others, accompanied by Sir John Peter, alighted, were admitted by a private entrance and had lodged their bills long before some of those who were being slowly admitted by the public entrance reached the counter. The incident attracted some comment, but no one could claim that he had been the loser by this irregularity since all the bills tendered (nearly £6 millions) were accepted for funding. On the following day, however, when the crush to gain admittance was even greater, Abraham Goldsmid again decided to make certain of having his bills funded. He gained entrance to the Exchequer Bill Office by a side door, handed to Sir John Peter bills amounting to £350,000, and by a complicated procedure involving many erasures in the books of the Bill Office, Abraham Goldsmid's name appeared first in the list of applications lodged and all his bills were funded. Those who had been admitted in the usual way and had had their bills rejected not unnaturally felt aggrieved. Goldsmid, shunning publicity on this occasion at least, made attempts to placate unsuccessful holders by petitioning for an increase in the amount of bills accepted for funding, so that the rejected applications could be covered. This proved to be impossible and the whole incident had to be related in detail before a Select Committee of the House of Commons,[1] which must have been especially distasteful to Abraham Goldsmid, who had to admit having made a gift of at least £5,000 stock to the clerks of the Exchequer Bill Office. In fairness it must be admitted that Goldsmid himself did not benefit directly from the irregularity as the bills he lodged were all for account of various banking houses.[2] The Committee's report criticised the administration of the Exchequer Bill Office and recommended a radical reform, but when it was discussed in Parliament the Chancellor of the Exchequer explained that " even the dismissal of the three officers would be attended with some inconvenience " and the matter was quietly shelved.[3]

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[1] *Lords' Committee on Resumption of Cash Payments*, 1819, Appendix A.3.

[2] *Old Bailey Sessions Papers*, 1803, 7th session, case 675.

[3] Certain writers have assumed that the Bank of England took up most of the Exchequer bills issued. Cf. Hawtrey, R. G., *Currency and Credit* (1934), p. 343. There is no evidence for this view.

[4] *London Gazette*, 14th March, 1810, p. 388. The terms were £103 5s. 0d. 5 per cent. annuities for each £100 of Exchequer bills, holders of which were to receive in addition accrued interest to 9th April, 1810.

Exchequer bills, although they were popular with bankers and merchants on account of their attractive yield, suffered from the disadvantage that they were not eligible for discount at the Bank of England and fluctuated in value like any other stock exchange security. These disadvantages did not attach to bills issued by the Commissioners of the Navy, Victualling and Transport Offices, which were regarded as bills of exchange and were discounted by private bankers and by the Bank of England.

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[1] *Select Committee on funding Exchequer Bills*, 1810.

[2] These included Curries, Raikes & Co. of Cornhill and Kensingtons, Styan & Adams of Lombard Street. It was said that Prescott, Grote & Prescott, Down, Thornton & Co., and Smith, Payne & Smiths, who were important dealers in Exchequer bills had been favoured on previous occasions.

[3] *Parliamentary Debates*, 31st May, 1810, pp. 226–7.

Navy bills were issued in anticipation of Parliamentary grants for naval services.[1] Those issued during the American war had no fixed time of payment, which depended upon the convenience of the Government, and at one time they fell to a discount of 18 per cent. Since contractors accepted these bills in payment for supplies at their market value, the fact of the quotation being at a discount raised materially the cost of naval expenditure, and in 1781 a limit of 15 months was put to their currency in the hope of raising their value.[2] Owing to greatly increased naval expenditure during the Napoleonic wars however, even the 15 months' bills soon fell to a discount and in 1796 an Act was passed limiting the currency of navy bills to three months.[3] This measure was successful in preventing navy bills from selling at a discount for they had only to be held for 25 days to be eligible for discount at the Bank of England.

Their continued popularity was of course dependent on their being met promptly at maturity. In September, 1800, it was found that the grants appropriated for naval services were not sufficient for the discharge of bills then outstanding. As at that time a loan could have been raised only on onerous terms the Treasury decided to propose to the holders of maturing bills that they should accept new 90 day bills in lieu of cash. The amount of new bills so accepted however, still left the volume of maturities greater than the cash available, and the Treasury decided to issue for cash new bills to cover the deficiency. To carry out such an operation none was better suited than " the gentleman who had been long the agent of government in the negotiation of Exchequer bills and other business of that nature "—Abraham Goldsmid.

It was accordingly arranged that navy bills should be made out to the order of any person whom Goldsmid & Co. should appoint. At first bills were made out in the name of George Glenny, a merchant, but later they were issued in the name of his firm, Donaldson & Glenny, in order to give them the appearance of being regular bills. The device must have been obvious to those in the market and indeed Goldsmid claimed that he generally told the people who discounted them that they were to pay other 90 day bills and that this fact was well known to the Bank and all bankers. However this may be, the scheme was an unqualified success. Between October, 1800, and March, 1802, £4,300,000 of such bills were negotiated by

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[1] *Commons' Committee on the Eleventh Naval Report*, 1805; Fairman, W., *The Stocks Examined and Compared, etc.* (1802), p. 91.

[2] 21 Geo. III, c. 43.

[3] 37 Geo. III, c. 26. The act also applied to victualling and transport bills.

Goldsmid & Co. at a discount of 5 per cent. per annum,[1] Goldsmid & Co. charging the usual ⅛ per cent. commission. Following the treaty of Amiens there was a rise in the funds and a loan of £25 millions was contracted for on 5th April, 1802, on terms 10 or 12 per cent. more favourable to the Government than could have been obtained a year earlier, and the maturing navy bills were paid off out of the proceeds of the loan.

The Goldsmids were dealers not only in Exchequer bills and in navy and victualling bills but also in the loans forming the funded debt, and it was as loan contractors and speculators in the funds that they made their name—and lost their fortune. In each year from 1793 to 1815 at least one Government loan was issued, and the total nominal amount of debt created during that period, apart from temporary borrowing, was £475 millions—an average of £20 millions a year. The issue of what were for those days substantial amounts, offering as it did the prospect of large profits, attracted many speculatively minded firms to the loan contracting business. Among the most active of these was the house of Benjamin and Abraham Goldsmid.

There were various ways of issuing a government loan. One was for the Chancellor of the Exchequer to fix the terms and to open lists to public subscription. Its successful employment required a well organised market with a strong professional element ready to take up large amounts of stock pending their absorption by investors, and it placed the responsibility of judging the issue price correctly on the Treasury and their advisers. Only a few loans were issued in this way. In December, 1796, Pitt appealed to the Lord Mayor and the directors of the Bank of England to encourage the raising of an £18 million loan, known as the loyalty loan, and the whole amount was subscribed within three days. In the following year he appealed to patriotic citizens to raise £25½ millions—which they duly did.[2] But neither of these loans remained long at a premium.

The reason was that the market was insufficiently developed to absorb large amounts of stock, and it was consequently found best to dispose of the whole loan to mercantile or banking houses who were in a position to place a large part with their customers and correspondents, and to hold the balance themselves until it could be taken up by permanent investors. Sometimes a private arrangement of this sort was made with an individual contractor or group of contractors, but it was widely recognised that this method led to abuses. One contractor frankly admitted that " it has been always considered that a private loan was expected to be a great bonus in comparison with one by competition ".[3]

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[1] This was less than the 3½d. per cent. *per diem* carried by navy bills issued in the usual way.

[2] Rose, J. H., *William Pitt and the Great War* (1911), pp. 304, 328.

[3] *Commons Journals*, Vol. LI, p. 322.

It was accordingly Pitt's policy to encourage rival contractors to bid for loans so as to obtain the best terms for the public. This policy, however, was not always followed, and one writer has gone so far as to suggest that the system of open competition was merely a façade designed to conceal the practice of arranging loans in advance of the actual bidding at agreed prices.[1] Although this statement is too sweeping, there were undoubtedly several examples in the early years of the war of loans being allotted without competition. Sometimes, as in the case of the loan for the year 1796, one party seems to have been deliberately favoured; at other times merchants combined so as to avoid what later generations would have termed "uneconomic competition". In spite of these examples, however, competitive bidding was the principal method employed throughout the war.[2]

Since new borrowing had to receive Parliamentary sanction it was usual for a loan to be arranged shortly before the budget, so that the terms could be approved at the same time as the budget was passed. A month or so before the budget date the Chancellor would let it be known that a loan was contemplated and mercantile and banking houses would consider whether or not they would bid. To bid for a loan of up to £25 millions was not an undertaking to be assumed lightly, and the Chancellor of the Exchequer, advised by the Bank of England, considered carefully the solidarity of the houses intending to bid. Some had a reputation which was sufficient evidence of their ability to meet their obligations; others were required to make a cash deposit of anything up to £500,000, while at least one house was excluded on the grounds that its resources were inadequate.[3] In practice the bidding was restricted to a relatively small number of leading houses.

Several types of financial institution were concerned. There were private bankers, among the most active of whom were Smith, Payne & Smiths and Robarts, Curtis & Co. There were merchant firms such as John and William Mellish and Boyd, Benfield & Co. J. J. Angerstein of Angerstein, Warren & Lock, the wealthiest insurance broker of his day, was among the bidders, while members of the Stock Exchange frequently combined to bid for the later loans of the war period. Only rarely did one house undertake to bid singlehanded. Usually two, three or even more combined,[4] leaving perhaps the actual negotiations with the Chancellor of the Exchequer in the hands of one of their number, but each signing the contract and accepting liability for the whole amount of the loan. There was nothing fixed about this grouping; "merchants and bankers competed in ever shifting combinations to derive their maximum advantage from the public needs".[1] For example, Sir Francis Baring & Co. were associated with Robarts, Curtis & Co., and Benjamin and Abraham Goldsmid as contractors for the loan of 1801, but for the loan of the following year Barings and Angerstein bid together in competition with a group headed by Robarts, Curtis & Co. and the Goldsmids.[2]

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[1] Capefigue, J. B. H. R., *Histoire des Grandes Opérations Financières*, Vol. II, p. 224, "la concurrence et la publicité ne sont que les broderies officielles d'une vente convenue d'avance à des taux fixes, car se sont toujours les même maisons de banque qui obtiennent les emprunts depuis 1794 jusqu'en 1800."

[2] The chief source of information on the technique of loan contracting is the Report of the Committee appointed to enquire into the loan of 1796. *Commons Journals*, Vol. LI, pp. 309–360. A short description appears in Mortimer, Thomas, *A general dictionary of trade, etc.* (1810); Article: "Loans".

[3] *Commons' Committee on the Tenth Naval Report*, 1805. Boyd, Benfield & Co. were excluded from the bidding for the loan of 1799.

[4] "The custom now is for those who are the most opulent and the most desirous of embarking in a loan, to associate for the purpose of bidding for it." *Commons' Committee of Secrecy*, 1797. Evidence of H. Thornton.

If a mercantile or banking house decided to bid, its first task was to "make up a list", which involved the preparation of a list of those who would be willing to accept a specified amount in the loan on whatever terms it was allotted. A successful contractor would be in touch with many private individuals, mercantile firms and banking houses who either as investors or speculators were interested in obtaining a share. Often contractors would have printed lists of regular subscribers.[3] If the anticipated amount of the loan were not covered by applications obtained in this way, a contractor would open his list to the public. Applicants not known personally to the contractor were required to sign a form of application, a supply of which was available at one or other of the well-known coffee houses, such as Garraway's, or at the contractor's counting house.[4] Some subscribers, such as agents applying on behalf of persons not known to the contractor, were required to make a cash deposit of 5 or 10 per cent. as some guarantee that they would take up the stock allotted to them, and such sums helped to provide the contractor with the amount he had to deposit as a sort of guarantee at the Bank of England. The money obtained in this way formed only a small part of the sum required, and the bulk was raised out of the contractor's own resources and those of his business associates.

A well-known contractor would find little difficulty in making up his list and professed to regard himself as conferring a favour on a would-be subscriber by admitting him. Negotiations were entirely in the hands of the contractor; the individuals on his list were not consulted and had to accept whatever terms the contractor obtained. If their names were on the list of a contractor whose bid was rejected they would naturally receive nothing, and would-be subscribers therefore often tried to get their names on more than one list, so as to stand a better chance of getting a share of the loan. This practice was discouraged by contractors; some tried to admit only those who would undertake not to be on another contractor's list; others gave preferential treatment to those who were on their lists only. Such was the practice which Walter Boyd explained so tactfully before a Committee of the House of Commons: "Such Friends as confessed that they had not so confined their Hopes of Success, I conceived myself obliged to observe less Delicacy with, than those who had embarked all their Hopes upon my Success."[1] The reason for this attitude possibly lay in the recognition that the unsatisfied demand for stock from those investors who had been on the list of an unsuccessful contractor helped to maintain the price when dealings started. In most cases such investors would apply to their bankers or a friend who banked at the same house as the actual contractor, and obtain a participation in the loan on paying a small premium.[2]

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[1] Jenks, L. H., *Migration of British Capital to 1875* (1927), p. 19.

[2] Grellier, J. J., *Terms of all the Loans* (1802), p. 46.

[3] *London Tradesman* (1819), p. 287.

[4] The text of an application form used by James Morgan. one of the bidders for the loan of 1794 is to be found in *Commons Journals*, Vol. LI, p. 315.

The composition of these lists varied according to the contractor. Some of the private bankers who contracted had long lists of more or less genuine investors. For example, the list made up by Robarts, Curtis & Co. for the loan of 1796 contained 183 names accounting for a total of just under £3 millions—an average of £16,000. Lists made up by merchants had usually far fewer names. Peter Thelusson & Sons, whose list for the same loan totalled £1,141,000, had 15 names accounting for £266,000, the balance being in the names of partners and members of the family. Generally speaking, private bankers retained a relatively small proportion for their own account and passed on most of their share to customers and provincial correspondents. Merchants, on the other hand, being more speculatively minded than bankers, frequently retained the largest portion for themselves in the hope of being able to liquidate it gradually at a profit.[3] And if this policy involved risk of loss, it offered also the prospect of rich reward.

The houses wishing to bid for a loan would make their intentions known to the Chancellor of the Exchequer (either directly or through the Bank of England), and in due course they would be summoned to Downing Street. At this first meeting the Chancellor would indicate the amount which he was expecting to have to borrow in the ensuing year, including the amount of the loan to be bid for. The next step was to agree upon the nominal rate of interest to be carried by the new stock. The contractors' views on this point would probably be known to the Chancellor already; usually contractors preferred a stock bearing a low nominal rate of interest issued at a price well below par, for such stocks were popular in the market, as they afforded scope for a rise in price after the war. Pitt, on the other hand, would have preferred a high nominal rate of interest and an issue price near par, as this would have made possible later a conversion to a lower basis. However, the lenders were in a position to dictate their terms, and practically all the issues of the war period were in 3 per cent. stocks at considerable discounts.[1] Payment for loans was usually spread over a period of twelve months, holders having the option of paying instalments in advance of their due dates under discount. One other point had to be settled, namely, the amount of the loan which had to be reserved for certain privileged persons. These included the governor, deputy governor and directors of the Bank of England, who between them usually received allotments totalling £500,000, and the chief cashier and other officials of the Bank, who shared £100,000. The practice of making allotments to officials of the Bank is a little anomalous, for the governor and deputy governor acted as advisers to the Chancellor and were usually present when details of the loans were under discussion. It may be that the advice tendered to the Treasury was completely unbiased by the personal interests of those concerned. What is certain is that the system brought substantial profits to the directors and officials of the Bank of England. It is said that Abraham Newland (chief cashier of the Bank and a close friend of Benjamin and Abraham Goldsmid) amassed a fortune of £200,000 mainly in this way.[2] The list of privileged subscribers was completed by the inclusion of certain public companies, forerunners of the powerful institutional investors who play so important a part in the market of the twentieth century. As yet, however, their stake in the market was only small. For example, the East India Company, South Sea Company, the Royal Exchange Assurance Co., the London Assurance Co. and Trinity House took between them only £1,000,000 in the loan of 1795, which amounted to £18 millions.

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[1] *Commons Journals*, Vol. LI, p. 334.

[2] *London Tradesman* (1819), p. 287.

[3] *Parliamentary History*, Vol. XXXII, p. 792. Speech of Silvester Douglas.

Occasionally at the first meeting at Downing Street, but more often at a second meeting a few days later, contractors had to hand in their bids for the loan. Special messengers kept the bidders closely posted with the latest stock exchange prices and last minute changes were made in the bids before they were handed in. Bidding took the form of stating how much stock the contractor would accept for each £100 of cash advanced. Where, as was usually the case, more than one stock was issued, round amounts were fixed for all but one, which would be the stock in which the bidding would be made. For example, in the loan of 1802 the parties agreed to take £65 of 3 per cent. Consols, £60 of Reduced Annuities and to bid in 3 per cent. Deferred Annuities. The lowest bid of £6 19s. 3d. of Deferred Annuities was made by Smith, Payne & Smiths and James Morgan, who accordingly received these amounts of stock for every £100 advanced. The terms were described as "exceedingly good for the public",[3] although since omnium[4] closed at 4¼ premium on the day dealings started, they could scarcely be said to have been unfavourable for the lenders. A price of 4 premium was usually regarded as indicating terms fair to both lender and borrower.[1]

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[1] For a discussion of this point see Newmarch, W., *Loans raised by Pitt 1793–1801*: Rosebery, *Pitt* (1910); Rose, J., *William Pitt and the Great War* (1911).

[2] [Collier, J. D.] *Life of Abraham Newland*, p. 98. *Gentleman's Magazine*, 1807, ii, p. 1170.

[3] *Daily Advertiser and Oracle*, 6th April, 1802.

[4] "Omnium" was the term applied to the aggregate of the several stocks which together made up a loan.

The opening price did not of course necessarily determine the lenders' profit on the deal. In the first place, it was not uncommon for a contractor to sell short before bidding (Smith, Payne & Smiths were said to have been short of stock when they bid for the loan of 1802[2]), and to the extent of such short sales the contractors' profit was determined by the difference between the price at which sales were made and the price at which the loan was obtained. Operations of this sort were made easier by the practice of issuing loans in the form of stocks which, when the omnium was fully paid, ranked equally with stocks previously issued. Secondly, since large amounts of omnium could not be thrown suddenly on the market without causing a heavy fall in price, contractors had to dispose of their holdings gradually to avoid spoiling the market, and the average price realised might well be substantially different from the price at which dealings started.

The bids which the contractors handed in to the Chancellor were examined immediately and the names of the successful contractors announced. The terms were embodied in a contract which was signed forthwith. Strictly speaking, this contract was only provisional and was subject to the ratification of the loan by Parliament. This was regarded only as a formality and dealings in the loan began immediately the contract was signed.

The contractor's work was now almost at an end. He had to send a letter of advice to those who were on his list, advising them of the amount they were entitled to. He had also to send to the Bank of England copies of his lists, so that the Bank would make out receipts in the names of subscribers. A few days later receipts would be ready and would be collected by the subscribers. The list sent in to the Bank was usually different from the contractor's own list because many subscribers preferred to have their receipts made out in the names of nominees. Foreign subscribers, for example, found it more convenient to have their holdings in the name of a London house which could handle the routine business of collecting the receipt from the Bank of England and paying instalments as they fell due. The same considerations applied to country subscribers, in particular bankers, who obtained a share through their London correspondents. There were other and less creditable reasons for preferring the anonymity which this method afforded. On one occasion Abraham Goldsmid said that a number of bankers on his list preferred not to have their names disclosed " for fear they might be called on by their customers for not having allowed them shares ".

Subscribers of large amounts usually had their holdings split up so that they received a number of receipts, thus enabling them to sell a portion of their holdings more readily. For example, Sir Robert Herries & Co., the bankers in St. James's Street, had their allotment of £80,000 in the loan of 1796 split into two amounts of £10,000, six of £5,000, six of £3,000 and twelve of £1,000. The receipts bore a form of assignment which was filled in by the original subscriber if he sold before the loan was fully paid up.[1]

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[1] Speech of W. Smith, *Parliamentary History of England*, Vol. XXXII, p. 769.

[2] *Daily Advertiser*, op. cit.

The first instalment was in most cases 10 per cent. and was usually paid by the contractors by means of a draft on their bankers. The amount required might be as much as £2½ millions and the withdrawal of such a large sum from the money market required careful handling. A few days prior to the date of payment the contractors' bankers would request those of their customers who were in a position to send bills to the Bank of England for discount to do so in order to increase the bankers' balances at the Bank. In this elementary form of "open market operation" the initiative came from the banks rather than from the Bank of England, whose assistance was of a passive character.

A contractor's work was virtually at an end once the Bank had issued receipts to subscribers, but it is not clear whether he was still liable under his contract if the subscribers failed to pay the instalments as they fell due. The contract for the loan of 1795 contained the following clause: "We the undersigned undertake and agree that we will make good the Payments on a Loan of £18,000,000 for the Service of Government for the Year 1795." In the contract for the next loan, however, which was signed by the same contractors, the relevant clause ran: "We hereby engage . . . to subscribe Eighteen Millions or Nineteen Millions in Money for the Loan of the Year 1796."[2] Walter Boyd, one of the parties to these contracts, maintained that "The contractors were and still are bound *singula in solidum* for the payment of the instalments and performance of the agreements entered into; while the simple subscribers were only bound to the extent of their subscription . . . the contractors were bound to the last shilling of their fortune".[3] This view was put forward to justify the large profit made by contractors on the loan of 1796, and it must be regarded with caution. The same attitude was taken by the governor of the Bank of England, Daniel Giles, but perhaps he was influenced by the fact that he had received an allotment of £240,000.[4] The general opinion among merchants was clearly that a contractor's liability was limited to the first payment.[5] Samuel Thornton perhaps expressed this view most explicitly. "The engagement entered into," he said, "is merely to make the deposit, for which I understand the parties are conjointly engaged, but after the appropriation of the different parts of the loan to respective subscribers I consider each party to be engaged only for the sum set against his name."[1] Even accepting Boyd's contention, however, the risk of subscribers failing to pay their instalments seems small compared with the large profits made when, as was usually the case, the loan opened at a premium. The risk of loss through subscribers defaulting was further decreased by the practice of the Bank of England of advancing to such subscribers as needed assistance the sums required to pay instalments after the first two or three.

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[1] Hale, C., *The Bank Mirror or a Guide to the Funds* (1795), p. 47.

[2] *Commons Journals*, Vol. LI, appendices 20 and 25.

[3] Op. cit., p. 327.

[4] Op. cit., p. 344.

[5] *Imperial Loan*: letter dated 2nd February, 1795, signed "A British Merchant".

It is hardly surprising that Benjamin and Abraham Goldsmid found in loan contracting an attractive field for their activities. Abraham Goldsmid, unlike most other loan contractors, appeared on the Stock Exchange in person (he was a member from 1802[2]) and this meant not only that he could deal for his own account without paying commission, but also that he " knew all the intrigue of the House "[3] and could keep in close touch with what was going on. Abraham seems to have been much more active in the stock jobbing and loan contracting business than his brother Benjamin. The Bank of England's stock registers of the period contain active jobbing accounts in Abraham Goldsmid's name for nearly all the Government stocks outstanding. Benjamin's accounts, on the other hand, covered fewer stocks and none was very active, while in their joint names there were only two stock accounts, neither of which showed any turnover.

Their first loan was that of 1795, for which they contracted jointly with Boyd, Benfield & Co., Peter Thelusson & Sons, Solomon Salomons, George Ward and Rawson Aislabie (all of whom were described as merchants), Robarts, Curtis & Co., the bankers, and E. J. Salomons, who described himself as merchant and stockbroker. The loan was an immediate success, dealing in the omnium opening at 1½ premium. They were in the same group as contractors for the £18 million loan of 1796, which was allotted without competition on the grounds that as the previous loan was not fully paid, allotment of a new loan to any but the contractors for the earlier loan would constitute a breach of an implied term in their contract. In the 1796 loan the Goldsmids' list amounted to nearly £3 millions, and they were in other lists to amounts totalling over £1 million, making their interest over £4 millions. Of this total the firm retained for their own account the not inconsiderable amount of £482,000. Dealings started at 7½ premium, so that they had an immediate " paper " profit of nearly £35,000. Later the price rose to 12½ premium, showing them a profit of over £60,000. The contrast between the premium on the loan allotted under competitive conditions and that on the one allotted without competition is most marked and gives ample justification to the caustic comment which the incident evoked at the time.

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[1] *Commons' Committee on the Tenth Naval Report.* 1805.

[2] Stock Exchange Archives.

[3] Lancaster, op. cit., p. 43.

Events soon demonstrated, however, how quickly paper profits could turn into losses. Owing to a continued drain of gold the Bank of England considered it necessary to narrow its discounts at the end of 1795, and when in February, 1796, the contractors, including Goldsmid & Co., made a joint application to the Bank for advances on the loan, they were refused. By this time the premium on omnium had fallen to 9. In the following May a further application received the same answer. In spite of its heavy commitments in this loan and difficulties caused by a growing scarcity of money, the group accepted Pitt's offer in April of the contract for a loan of £7½ millions. The object of this loan was to fund Exchequer bills, including certain bills held by the Bank of England, and it would therefore have had the effect of increasing the scarcity of money still further. The Bank and the Chancellor of the Exchequer, recognising that they could not withdraw such an amount from the money market without causing difficulties, gave an undertaking that the Bank would adopt a more liberal policy.[1] When, therefore, the contractors applied for assistance, the Bank agreed to advance the third, fourth, fifth and sixth instalments, leaving the contractors to pay the seventh and last instalment which became due in October, 1796.[2]

From the point of view of the contractors the loan was far less successful than the two preceding ones. The monetary stringency had depressed the prices of the funds; 3 per cent. Consols, for example, having fallen from 67 in April to 57 in October. In May the new loan was only at 3 premium, and it fell steadily to 9 discount at the end of the year. In these circumstances the contractors were naturally anxious to hold their stock in the hope of an improvement, and in October they accordingly asked the Bank to extend the date of repayment of the amounts advanced and to pay on their behalf the final instalment then becoming due. This application was refused, and the Bank would only agree to accept repayment of the amounts already advanced in three instalments falling due in October, November and December of that year.[3] How much, if any, of their original share the Goldsmids still retained at this time is not known, but on the most favourable assumptions the transaction can hardly have yielded them much profit and may well have involved them in substantial losses. In any event it showed clearly that it was only a rising stock market which gave loan contractors an assurance of large profits.

The Bank Restriction Act, 1797, brought about a radical change in the situation in the money market. Relieved of all fear of a drain of gold, the Bank of England could now pursue a more liberal credit policy. This took two forms, first, a greater willingness to discount commercial bills and increased facilities for the discount of navy bills, and, secondly, a return to the old policy of lending money freely to contractors and others to enable them to pay instalments on loans. "It now remains no longer a matter of concern or anxiety with the loan monger that he is unable to fulfil his engagements," said a contemporary commentator. "If he can pay two or three instalments of his subscription, the Bank, on the credit of these, advances the greater part of the remainder."[1] This change in policy was reflected in a gradual rise in the price of 3 per cent. Consols from just under 50 in the middle of 1798 to over 62 in June, 1799.

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[1] Boyd, W., *Letter to Rt. Hon. Wm. Pitt* (1801), Appendix B.

[2] *Commons' Committee on the Tenth Naval Report:* Evidence of S. Thornton, 8th May, 1805.

[3] Grellier, J. J., *Terms of all the Loans* (1812), p. 61.

The rise in the funds came too late, however, to save the leading loan contractors—Boyd, Benfield & Co., who failed early in 1800 as a result of heavy losses incurred on their holdings of government stock. The Goldsmids, although in the same group, were able to weather the storm, either because they were prudent enough to reduce their commitments before the fall had proceeded far, or because their superior resources enabled them to hold out until prices recovered. The latter explanation may well be the correct one, for their "money" business gave them a command over resources not enjoyed by other loan contractors.

Complete details of this money business are lacking, but it is possible to sketch the main outlines. It appears to have developed out of their dealing transactions in commercial paper, and Exchequer bills, navy bills and other government obligations. Shortly after their move into Capel Court the Goldsmids were making loans on such securities as a sideline to their dealing business. In October, 1793, for example, they advanced £2,000 to William John, a merchant with whom they carried on an active business, on the security of £2,403 navy bills, and a further amount of £1,000 was advanced later on £761 navy bills. Subsequently amounts totalling £4,348 representing instalments on £10,000 of 3 per cent. Bank annuities were advanced.[2]

It was as borrowers, however, rather than as lenders, that they developed their money business. A dealing business in bills and securities—unlike a pure brokerage business—meant that at times substantial amounts of bills and securities were held and this demanded correspondingly large cash resources. Furthermore they required cash to meet the instalments on the unsold portion of the loans for which they had contracted.

The Goldsmids accordingly commenced the business of taking loans at call from those bankers who had surplus funds to employ in a liquid form. These loans were secured by the deposit by Goldsmid of omnium, Exchequer bills and navy bills with the lenders. "Thus the banker made an interest on the surplus in his till tangible the instant his customer might draw for it, and instead of keeping £100,000 therein might safely do with £50,000, sending the other to Goldsmid for interest." This business was undertaken on a large scale, and it has been suggested that the amount obtained by the Goldsmids was as much as £4 to £5 millions. "There might have been about 100 bankers in London—a rebanking by whom suppose only at £10,000 each would recreate £1,000,000, but four or five times that amount was probably not exceeding the mark."[1] This estimate seems too high. First, there were substantially fewer than 100 recognised bankers in London,[2] and it is hardly likely that many mercantile firms participated in the business, although some may have done so. Secondly, it is hardly likely that all the bankers in London had call money with the Goldsmids—at any rate at the same time. Probably an estimate around £2 millions would be nearer the truth.

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[1] Morgan, Wm., *Comparative view of the public finances* (1801), p. 39.

[2] Goldsmid v. Thomas, *Chancery Plea Rolls*, 657, 34. c. 12.

It is unlikely that the Goldsmids paid much less than 5 per cent. for these call loans, for bankers could generally obtain that rate by discounting navy bills and first class commercial paper for their customers. On the other hand, when dealing through brokers, bankers had to pay the usual ⅛ per cent. brokerage, which reduced the yield considerably if the bills they bought were held for only a short time. Thus if a banker discounted a bill for a customer at 5 per cent. per annum (the maximum rate) and a month later had to sell that bill through a broker at the same rate,his net return, allowing for brokerage, would be only 3½ per cent. per annum. It was clearly an advantage to be able to deposit money with the Goldsmids even at a slightly lower rate than 5 per cent., for it could be called without cost.

For the Goldsmids, however, even 5 per cent. was low in comparison with the rates they would have had to pay had they depended on the facilities obtainable on the Stock Exchange. The usual method employed to carry a "bull" position in the funds was to buy for the rescounter settlings, which took place every six weeks, and if at the end of the period the stock had not risen in accordance with expectations to sell for cash and buy for the next rescounter.[3] This method was not cheap. When the demand for continuation facilities was heavy the stock jobbers were able to demand continuation rates of 2 or 2½ per cent., equivalent to 16 or 20 per cent. per annum. Many bankers outside the Stock Exchange tried to take advantage of these high rates by buying for cash and selling for the settling, but they found that taking into account two commissions and the jobbers' turn "the cream was to the craft within the inclosed market".[4]

These continuation facilities were provided by the jobbers partly out of their own resources, partly out of funds obtained from bankers and others and partly by running a bear position. The business carried on by the Goldsmids was little to the taste of the jobbers, for it rendered them and their associates independent of the continuation facilities which the jobbers provided at considerable profit to themselves. Furthermore, their interests were directly opposed in that the Goldsmids as loan contractors wanted a rising market, while the jobbers were more often than not short of stock and tried to depress prices.

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[1] Lancaster, op. cit., pp. 42–43.

[2] London directories for 1800 give the names of 68 bankers; in 1810 there were 83.

[3] For a description of rescounter settlings see Mortimer, Thos., *The Nefarious Practice of Stock-Jobbing Unveiled* (1810), p. 63. The principle is the same as that underlying modern 'contango' operations.

[4] Lancaster, op. cit., p. 27. The term 'jobbers' has been used throughout for the sake of brevity, but it must be remembered that there was no distinction between jobbers and brokers at this time.

As time went on the struggle between the two groups became more intense. The jobbers had an advantage in that the rising war expenditure. financed largely by loans, tended to produce a falling stock market even without any intervention on their part. The Goldsmids, on the other hand, had large resources which they could use to support the market. On one settling day when the jobbers, by circulating unfavourable rumours, had caused a wave of selling, Abraham Goldsmid gave names for nearly £1½ millions of stock, of which £960,000 went into his own name. That he could take up such large amounts of stock was due to the widespread nature of his call money business. The banker " who withdrew a surplus from Goldsmid paid it in to the other who carried it, the same hour perhaps, to whence it came from, and by checks this transfer was often rendered without the intervention of a single bank note : consequently when his plan was perfected his rebanked capital fluctuated scarcely more than the aggregate of a minor banking house."[1] The money paid to the bears for the stock which they had borrowed to throw upon Goldsmid went to their bankers, who deposited it with Goldsmid, thus enabling him to pay for the stock they had caused him to buy.

It is clear that fluctuations in the Goldsmids' cash balances from day to day must have been quite considerable. Even if these fluctuations were " scarcely more than the aggregate of a minor banking house " the Goldsmids lacked what banking houses enjoyed, namely, the right to discount at the Bank of England in case of need.[2] This may have been because the Bank regarded them more as brokers than as merchants or bankers : in any case it forced them to rely on private bankers for accommodation. The violent fluctuations in the balances they maintained made the connection not altogether satisfactory from the bankers' point of view. After shifting their account several times from one banker to another, they settled at length with Ayton & Co. on the understanding, apparently, that they would maintain a standing balance of £20,000 on which they would not draw without giving previous notice.[3] In addition to their accounts with private bankers, they maintained a drawing account with the Bank of England. It was opened in July, 1798, apparently in connection with their participation in the loan of that year, and £860,000 was passed over the account between 13th and 24th July. Thereafter, however, the account was little used, and was finally closed in 1809, having remained dormant for ten years.[1]

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[1] Lancaster, op. cit., p. 46.

[2] *Secret Committee on the Commercial Distress*, 1848, evidence of Samuel Gurney, Q. 1343.

[3] *London Tradesman*, p. 101. This is presumably what is meant by the phrase ". . . on the understanding that they should not draw within the sum of £20,000 ".

In addition to their own capital and the resources that they could command from their business in call loans, they could rely on their connections with other important mercantile houses. As already mentioned, their early activities as loan contractors were in the group headed by Boyd, Benfield & Co. In 1799, however, possibly because of their knowledge that this firm were in difficulties, they formed a separate group with Robarts, Curtis & Co. and E. P. Salomons, leaving Boyd to make a separate bid. In the following year the group joined with the important mercantile house of Sir Francis Baring & Co., and Daniel Giles, a former Governor of the Bank of England, to take the £20 million loan of that year between them. In 1801, Robarts, Curtis & Co., Goldsmid & Co., and Sir Francis Baring bid successfully for a £28 million loan. They were evidently shrewd judges of the market, and were quite prepared to let other contractors take a loan which they could not get on their own terms. For the loan of 1802, for example, they were outbid by Smith, Payne & Smiths and James Morgan, but the loan did not remain at a premium and fell to 4 discount within four months.

In a succeeding loan the Goldsmid group was outbid by Sir James Esdaile & Co. and Sherwell, who saw their stock fall to 8 discount within a month, "these gentlemen being worse than novices"[2]. Eventually Goldsmid & Co. took the loan off their hands at 2 per cent. above the market, and brought the price up to par and eventually to a premium. This experience seems to have daunted some of Goldsmid's competitors, and his group took the loans of 1804 and 1805, apparently without competition. They also obtained the loan of 1806, although this time they had to compete against a newcomer who was later to become a powerful rival—David Ricardo.[3]

This period of activity and prosperity was brought to an abrupt close by the sudden death of Benjamin Goldsmid in April, 1808. For some time previously he had been in poor health and had been subject to fits of depression, and he hanged himself at his house at Roehampton.[4] His will provided that the residue of the estate, after provision had been made for specific legacies, might be employed by Abraham in his business for three years at 5 per cent. per annum.

Abraham took advantage of this provision, and formed two firms to handle the business formerly conducted by himself and his brother. One was to be purely a stock-jobbing concern, the two partners being Abraham Goldsmid and Nathan Salomons, Benjamin Goldsmid's brother-in-law. The latter, although described as a merchant. had had a jobber's account in 3 per cent. Consolidated Stock since 1799 and had been active as a jobber since 1804.[1] It is probable that he had had business connections with the Goldsmids for some years. On joining in partnership with Abraham Goldsmid he became a sworn broker[2] and was admitted to membership of the Stock Exchange.[3] The reason he became a sworn broker probably lay in the fact that a year or so before—in 1805—the City Corporation had made one of its periodical efforts to enforce its jurisdiction over brokers, and had won a test case against Francis Bailey, an unlicensed broker.[4] Abraham Goldsmid, not a licensed broker himself, no doubt thought it prudent to have his partner qualified to act, and there is evidence that he left actual dealing largely to Nathan Salomons.[5]

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[1] Bank of England Archives.

[2] Lancaster, op. cit., p. 40.

[3] Grellier, op. cit., pp. 65–71, Appendix, pp. 1–2.

[4] For an account of Benjamin Goldsmid's private life see Alexander. L., *Memoirs of the late Benjamin Goldsmid* (1808). It is entertaining if not reliable.

The other partnership was formed to handle Abraham Goldsmid's remaining stock operations and all his other concerns, the partners being himself, his son Aaron and Thomas Moxon.[6] The latter had had a jobber's account in 3 per cent. Consolidated Stock since 1799 and had been active from 1804 as a dealer in the funds.[7] He was probably one of Abraham Goldsmid's chief clerks. The sale of Exchequer bills on behalf of the Treasury was handled by this partnership, although in practice it proved impossible to keep rigidly to a division between Stock Exchange transactions and others, for the two were so closely related. For example, securities received by Goldsmid from the Government, which were handled by the A. Goldsmid, Son & Thomas Moxon partnership, were frequently used for the partnership in which Nathan Salomons was interested.[8]

The two brothers had been inseparable companions and Abraham felt his brother's death keenly. After 1808 the opposition of the jobbers appears to have increased, and, led by David Ricardo, they lost no opportunity of frustrating Abraham Goldsmid's efforts to support the funds. From 1809 Ricardo publicly advocated a resumption of cash payments, which, if adopted, would have compelled the Bank of England to restrict its discounts, and would have made it much more difficult for Abraham Goldsmid to support the market.[9]

In 1810 the growing symptoms of currency disorder evident in the high price of gold bullion and the fall in the exchanges attracted attention, and in February the famous Bullion Committee was appointed. Between February and May the Committee examined twenty-nine witnesses, but Abraham Goldsmid was not among this number, and it is not unreasonable to conjecture that his exclusion was due more to personal antipathies than to his inability to contribute to the evidence examined.

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[1] Bank of England Archives. It was the Bank's practice to keep stock accounts which contained a large number of entries and were obviously those of professional operators in special jobbers' ledgers.

[2] *Register of Sworn Brokers* (Guildhall Records Office).

[3] Stock Exchange Archives.

[4] Duguid, C., *Story of the Stock Exchange* (1901), p. 100.

[5] Lancaster, op. cit., p. 55.

[6] Act to provide for the . . . liquidation of the debt due . . . from the late Abraham Goldsmid, 1812, 52 Geo. III, c. 75.

[7] Bank of England Archives.

[8] Act to authorise a composition for the debt . . . from the late Abraham Goldsmid . . .,1820, 1 Geo. IV, c. 42.

[9] "Financial and Monetary Policy of Great Britain." *Quarterly Journal of Economics*, Vol. XXXVIII, p. 404 *et seq.* Professor Silberling's conclusion that Ricardo's views on monetary policy were coloured by his interests as a jobber seems inescapable.

In spite of a falling stock market and growing monetary difficulties, A. Goldsmid & Co. contracted jointly with Sir Francis Baring & Co. for a loan of £14,000,000 in May, 1810. The amount retained by the firm was relatively small—approximately £800,000—but the opening price of omnium proved disappointing, and it fell to a discount shortly afterwards. Abraham Goldsmid made energetic efforts to support the market—the average amount dealt in by his house at this time was estimated at £100,000 a day, but he succeeded only in increasing his holdings to a degree which became embarrassing.[1]

His transactions with the East India Company also contributed to his difficulties. The assistance granted to the Company by Parliament was advanced in Exchequer bills, which the Company had put into Abraham Goldsmid's hands to negotiate. In respect of bills amounting to £500,000, the Company had received £150,000 and had informed Goldsmid that the remainder would be required on 1st October, 1810. For this sum they held omnium as security.

Since the death of his brother, Abraham had been depressed and at one time his relatives would not let him remain alone for fear he would do himself harm. This nervous condition was aggravated by an accident in Lombard Street when he was knocked down by an over-driven ox. When, towards the end of September, omnium fell to 6½ discount, Goldsmid's depression increased, and on 28th September he was found shot in the grounds of his house at Morden.

When the news reached the City, Consols fell in a few minutes from 66½ to 63¼ and omnium fell from 6½ to 10½ discount. The Government immediately stepped in and appointed Thomas Bainbridge, J. P. Kensington and James Barnet to investigate the firm's position and to submit measures for ensuring the orderly liquidation of its assets. It then became known that the firm was indebted to the Exchequer to the extent of £466,700, of which £419,000 was on account of Exchequer bills. The Chancellor of the Exchequer adopted a sympathetic attitude to the difficulties of the money market and stated that the Government would not issue an extent against the firm's property provided that bankers and others who held omnium as security for loans to the firm would show equal leniency. The Bank of England promised liberal assistance and undertook to advance to those who held omnium as collateral security sums sufficient to enable them to pay all instalments thereon beyond 20 per cent.[2]

These measures succeeded in restoring confidence, and omnium soon recovered to 6½ discount. For the purpose of winding up its affairs the surviving partners continued to manage the business, but had to account to a committee of inspection consisting of Thomas Bainbridge, Alexander Baring, W. J. Denison and George Ward. All assets had to be deposited at the Bank of England. After paying 17/6 in the £ the partners petitioned Parliament to release them from the debt of £466,700 due to the Crown and this was effected by a bill which became law on 8th July, 1820.[1]

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[1] *Gentleman's Magazine*, October, 1810, p. 385.

[2] *The Times*, 3rd October, 1810.

The main outlines of the story are familiar enough: the years of obscurity, hard work and slow progress, then the rapid rise to fame and prosperity, and finally the sudden collapse like the pricking of a bubble. Yet it is impossible not to regret the tragic end of a firm which had played so important a part in the London money market during one of its most formative periods. Benjamin and Abraham Goldsmid saw the need for a specialist intermediary in the bill market and became the leading bill dealers of their day. They saw too the possibility of meeting the demand from bankers for a safe and profitable employment for their surplus funds by creating an active market in commercial paper and Exchequer bills, and by introducing or at any rate popularising call loans based on bills or Government securities. As loan contractors they were probably instrumental in raising more money for the prosecution of the Napoleonic wars than any other house. These are achievements which entitle the Goldsmids to a prominent place in the history of the London money market—a place that has hitherto been denied to them.

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[1] 1 Geo. IV, c. 42.

Book Reviews

Monopoly. By E. A. G. Robinson. Cambridge Economic Handbooks. University Press, Cambridge, and Nisbet & Co., Ltd., London. 1941. xvi + 298 pp. 7s. 6d. net.

This book in its handy format contains an amazing amount of material, descriptive as well as theoretical, and it deserves highest praise for the sane and wholesome combination of description and theory. The author has the rare gift of being able to weave classificatory systematics, historical narratives, abstract theorizing and even political appraisals into a clean and colourful fabric.

The merger between description and theory is especially successful in Chapter III, " Types of Monopoly ", Chapter IV, " Devices for Establishing and Prolonging Monopolies ", and Chapter V, " The Forms of Monopoly Organisation ". Other chapters are of necessity more on the descriptive side—Chapters IX–XI on " The Law and Monopoly " in the United States, Germany and Great Britain—while other chapters rely more on abstract speculative thought—particularly Chapters VI and VII on " Monopoly and Industrial Efficiency " and " Monopolies and Industrial Stability ".

Contributing to the high appreciation which this reviewer has for Mr. Robinson's book is obviously the fact that, for the last few years, he has himself been engaged in the preparation of a book on the same subject and now finds in the rival product numerous ideas which he has tried to express, although probably in a much less felicitous manner. Furthermore, the reviewer's appreciation is heightened by a comparison of Mr. Robinson's study with the many volumes of the " Investigation of Concentration of Economic Power " by the Temporary National Economic Committee of the United States Congress. Not that these volumes of Hearings and the several monographs on monopoly did not contain a wealth of valuable material; nor that their total contents were disappointing; it is that the average content per page is low in the American Monopoly Investigation and so extremely high in the Monopoly study by Mr. Robinson.

The stated purpose of Mr. Robinson's volume is " to consider what we mean by monopoly, the conditions in which monopolies can be created and can continue to exist, the forms that they take, their virtues and vices in certain respects, and the attitude to them of the law and of public opinion in different countries " (p. 1). The problem of judging " virtues and vices " is recognised as one which " the economist as economist " cannot solve; likewise, judgments concerning the best policies cannot be expected from economists as economists; all such judgments must, instead, be derived " from our ethical or political or religious tenets" (p. 273). For instance, "we cannot prove by logic, or by economics as a branch of logic, that human welfare will be maximised if the distribution of wealth is made as equal as is possible, however clearly our intuitions may recommend this to us" (p. 273). Yet, in peculiar contrast to such views, we find the author at another phase of his analysis indulging in interpersonal utility comparisons: "The amount of utility or disutility measured by a shilling will be different according as the shilling is spent or earned by a poor man or a rich man. Something profitably produced by poor men and consumed by rich may cause far more disutilities in production than it creates utilities in consumption. . . . A monopoly might . . . come closer to . . . the socially desirable output" (pp. 174–5). Who is right? Mr. Robinson of page 174 or Mr. Robinson of page 273?

In the first chapter, entitled "Monopoly Price", Mr. Robinson furnishes the reader with some of the tools from Mrs. Robinson's *Economics of Imperfect Competition* which have indeed become all but indispensable for an intelligent discussion of pricing problems. In the brief exposition which Chapter I presents of the fundamental propositions of price and output analysis, there appears a puzzling statement: "The output which a monopolist will find it in his best interest to produce will vary not at all in accordance as the demand is more or less elastic . . ." (p. 17). And, again: "The fact that the demand is more elastic will neither lead him [the monopolist] to produce more nor to produce less than he would have produced had the demand been less elastic" (*loc. cit*). This is not correct. Output is independent of the elasticity of demand only in the case of constant costs. Perhaps when the author intended to isolate the effect of the elasticity of demand and, therefore, to keep cost constant, he erroneously associated this with "constant cost". Under given cost conditions, except constant marginal cost, output may vary a little as the demand is more or less elastic.

Chapter II, entitled "Quasi-Monopoly", deals with the more important oligopoly cases and the problem of entry into the industry. Two conclusions are drawn from the analysis of oligopoly. First, that "the detective story approach to the study of monopoly, the search for mysterious hidden agreements, is really a waste of time. Their existence may prove something, their non-existence proves nothing. Second, if we discover a condition of monopoly it is highly unlikely that we can with any certainty re-establish a condition of competition merely by breaking up that monopoly into a few constituent parts. It is very much more likely that we shall substitute the uncertainties of a cat and mouse monopoly for the certainties of an open one" (pp. 29–30).

An interesting thought appears in a section on "The Instability of Imperfect Competition". The author finds that the two traditional conditions of equilibrium—" that the individual firm should have no inducement to expand, and that new firms should have no inducement to enter " (p. 35)—must be supplemented by a third: that the firms should have no inducement to combine. Since further combination between separate firms under imperfect competition would ordinarily be profitable, " the condition of imperfect competition is inherently unstable " (p. 36).

Mr. Robinson's classification of types of monopoly (Chapter III) seems to be a useful one. The four categories, derived from a twofold distinction, are simple and significant, though, of course, not " watertight and invariable " (p. 61). Examples are given to help characterise the four groups: long-term unconditional monopolies (legal monopolies, radium, diamonds), long-term conditional monopolies (coal, sewing cotton), short-term unconditional monopolies (international cartels, rubber) and short-term conditional monopolies (many local businesses).

The description of the " devices for establishing or prolonging monopolies " (Chapter IV) is refreshing in its brevity. The moderation which the author exercises in the supply of illustrative material distinguishes him from those " realistic " writers who bury a few grains of thought under many tons of facts. With regard to " unfair practices " Mr. Robinson remarks: " To the economist the criterion of whether a practice is unfair or not, is the test whether it leads to the substitution of a cheaper for a dearer, or of a dearer for a cheaper source of supply. . . . But if that criterion is employed, the same practice may be fair when used by an efficient, unfair when used by an inefficient producer " (pp. 79–80). Of course, Mr. Robinson concedes that the lawyer cannot do with these uncertain tests and must resort to other, more arbitrary but objective, criteria.

The description of the " Forms of Monopoly Organisation " (Chapter V) follows largely the scheme prepared by the *Report of the (Balfour) Committee on Industry and Trade: Factors in Industrial and Commercial Efficiency*. The merit of Mr. Robinson's discussion lies in the attempt to analyse the conditions which make the adoption of particular forms of organisation adequate to special situations of different industries.

A closely reasoned, purely deductive analysis is made of the problem of " Monopoly and Industrial Efficiency " (Chapter VI). The " deductive approach to the problem " is justified by the author by pointing to the fact that " the results of the inductive studies appear so uncertain " (p. 107). The analysis divides the possible economies of monopoly into " technical economies, economies of management, economies of a financial character, and economies of buying raw materials and marketing the finished product " (p. 111). It is impossible even to sketch here the sometimes rather steep and winding paths of reasoning employed by the author, but a few quotations may give an idea of the results which he has reached. He expects " a monopoly of the fused and co-ordinated type to be superior in technical efficiency to competing firms, unless the competition is exceptionally perfect . . ." On the other hand, he expects " monopolies of the prices- and quota-fixing variety to be inferior in technical efficiency to ordinary competition " (pp. 117–18). Concerning management he says: " . . . effective co-ordination presupposes intimate knowledge and understanding of the units, and beyond a point that becomes impossible. But the nearer technical control, through decentralisation, approaches to a state of no control, the larger the number that can be co-ordinated " (p. 125). Concerning the difficulty of the tasks: " . . . the economic struggles of competition are largely replaced by the internal political struggles of the monopoly " (p. 129). " Not a few monopolies would appear to reap their monopoly gains not in the form of exceptional profits, but in a laxity of organisation and a conservatism of technique " (*loc. cit.*).

Another chapter of theory is that on " Monopolies and Industrial Stability " (Chapter VII). Starting from the accepted theorem that, in industries faced with fluctuating demand, stabilisation of price usually would mean de-stabilisation of output, the author studies and compares the possible inducements which competitors and monopolists may have to stabilise output over time. But then the analysis is carried beyond that of the particular industry to the problem of general stability of production and demand, as affected by income distribution, saving and consumption propensities, and the cost of investment goods during booms and depressions. The author is very careful in the formulation of his conclusions; he sees little evidence that monopolies contribute to industrial stability, and believes that most of his findings point in the opposite direction.

Chapter VIII, on " The Control of Monopoly ", cannot do without judgments of value and political bias. For if the alternatives—suppressing certain monopolistic devices, breaking up monopolistic organisations, regulating monopolistic policies or socialising monopolistic industries—are to be " evaluated " and intelligently discussed, a recourse to ethical and political values is indispensable. As was indicated above, the author does not try to evade meta-economic evaluations. Indeed, in the last chapter of his book, he deals with " Future Policy " and there he makes his personal confessions, showing himself as a sincere believer in continuity, piecemeal progress and peaceful gradualism.

The general editorship of the series of Cambridge Economic Handbooks has passed, with the present volume, into the hands of C. W. Guillebaud. Mr. Guillebaud succeeds D. H. Robertson, who, in turn, had taken over from J. M. Keynes. In an " Introduction to the Series " the new editor reviews the past and previews the future of the series. He states that " —for a time at least—the writers of future volumes of the Cambridge Economic Handbooks may be concerned rather with specific problems than with the more general aspects of economic theory" (p. ix). As long as the future analysts of specific problems do not lose sight of the general aspects of theory, which alone give sense to the specific, the high intellectual level of the Cambridge series need not suffer from the change in policy.

FRITZ MACHLUP.

Poverty and Progress: A Second Special Survey of York. By B. SEEBOHM ROWNTREE. London: Longmans, Green. 1941. xx + 540 pp. 15s.

Mr. Rowntree has repeated his social survey of York after a lapse of nearly forty years, and his second attempt must be adjudged no less successful than his first. *Poverty: A Study of Town Life*, was one of the pioneer social surveys in this country, following as it did closely upon Charles Booth's great survey of London. Since that time the technique of taking social surveys has developed, and new methods have been devised for tabulating large quantities of data mechanically. *Poverty and Progress* is therefore more voluminous and comprehensive than its predecessor.

The first social survey of York provided valuable data on the incomes and earnings of the working classes, a subject about which little information was available at that time. To-day we know more about the level of wages in industry, but we know very little about actual income distributions, and the question that immediately suggests itself is: Has the proportion of the population living in poverty decreased significantly since the first study was written? Mr. Rowntree can answer this question, for he has tried, as far as was possible, to use the same method of investigation in the present social survey as he did in the previous one. This involved making a house-to-house investigation of all York working-class households, where the main earner's income was below £250 per annum. Mr. Rowntree does not use the sampling method, though, in a supplementary chapter of his book, he gives some results which would have been obtained had the sampling method been used. We shall discuss the results of that chapter below. In the house-to-house investigation the author did not, however, try to ascertain the family income by means of direct questioning, but preferred to obtain this information from other sources. Being a prominent local resident, he was able to enlist the co-operation of some of the city's employers, who permitted him to use their records in order to discover what wages individual workers in their employ had been paid. This method could only be used for part of the population, and in those cases where no wage records were available Mr. Rowntree arrived at the family income by a careful estimation of the wage that the worker would be earning in his trade. In making this estimate he was assisted by local Trade Union officials and others conversant with local conditions.

Mr. Rowntree justifies this method by stating that " . . . most of the interviews were with women, and frequently a woman only knows what money her husband gives her, not how much he actually receives. And even if those interviewed knew what wages the occupied persons were receiving it is doubtful whether reliable information would have been given to the investigators." Against this statement, we must set one made by those who were responsible for the Social Survey of Bristol. They state that " . . . on several occasions husbands even ran after them (the investigators) to disclose earnings which they did not want to reveal in front of their wives " (cf. H. Tout, *The Standard of Living in Bristol*, p. 24). It will be noted that the Bristol investigators interviewed the men themselves, not only the women, and it would seem that the direct method of obtaining information regarding incomes from the workers is preferable. In the first place, the information thus obtained refers to a definite period of time, e.g. the week or the month preceding the enquiry. Secondly, such information can, if necessary, be checked against the information supplied by the employer. Mr. Rowntree's income statistics do not refer to the same period of time for all families ; some of his figures are earnings for the preceding six months, others refer to a particular week, yet others are estimated on the basis of local knowledge. Though Mr. Rowntree's results are no doubt substantially correct, his method adds an element of uncertainty to their interpretation.

In the survey poverty is measured by means of two poverty lines. One of these is the primary poverty line which corresponds to a bare subsistence level, and by the use of which comparisons may be made with the previous study. In 1936 3.9 per cent. of the total population were living below the primary poverty line, against a corresponding figure of 9.91 per cent. 40 years ago. But of the persons living below that line to-day, almost one half are children under fourteen. The figures therefore confirm the impression that it is the younger generation that suffers most severely from poverty and want. The apparently low figure for those in primary poverty still makes a grave social problem.

The second poverty line allows for a bare modicum of non-essential expenditure. It is unnecessary to discuss Mr. Rowntree's results in detail, as they have been given sufficient publicity elsewhere. One point of method should, however, be mentioned. The author assumes that supplementary earners, over fifteen years of age, contribute to the family exchequer merely the amount that they pay for board and lodgings. Families are then classified according to available income and not according to total income, available income being defined as the amount available to the housewife for the maintenance of her family after rent and rates have been paid. It would have been interesting to see a cross-classification of families by total and by available income, but we have Mr. Rowntree's authority that classification by total income would not affect his results significantly. Supplementary earners in regular employment may, however, contribute additional sums to the household, and may especially help with non-recurrent items of expenditure. We would, therefore, have preferred to have total family income tabulated.

The whole of the first part of the survey is full of interesting and detailed information regarding the income groups in the population, the sources of their incomes, and the size of families in particular income groups. One cannot help feeling that Mr. Rowntree must have a wealth of yet unpublished information at his disposal, and one would have wished that he had presented some more of the detailed information in the appendix.

In the remaining part of the study, the author discusses the development of the health and education services of the city, goes into the question of housing rather extensively, and devotes a very interesting chapter to the leisure activities of the population. This last chapter is long and full of all kinds of unexpected information, ranging from the description of the interior of a social club on a busy night to a statistical analysis of the size of groups seen to enter public-houses.

Finally Mr. Rowntree presents a chapter entitled "An Examination of the Reliability of Social Statistics based on the Sampling Method". He arranged his 16,362 household schedules in street order, and then proceeded to examine every tenth, twentieth or fiftieth schedule for a certain characteristic, and obtained the proportion in the sample. This proportion would then be compared with the correct figure for all households obtained in the house-to-house enquiry. Let it be said, first of all, that by far the greater part of the sample results is such that the conclusions drawn from the sample would not be very different from those drawn from the whole population. Mr. Rowntree, however, chooses a rather strange method of presenting his results. If the proportion of persons in income group D is 12.4 per cent., as against 13.9 per cent., the error of sampling is surely 1.5 per cent., and not as Mr. Rowntree will apparently have it about 12 per cent. This way of presenting errors will naturally show a number of cases where the error of sampling is apparently large. Even so, in many of those cases the error is well within the range that sampling theory predicts. It is doubtful, however, whether the method of selection that the author has used will really give him a random sample. If, instead of arranging his schedules in street order, he had arranged them in alphabetical order of surnames, his results would probably have been even closer to what theory would lead us to expect.

The insistence on the minor blemishes of the survey should not, however, be allowed to obscure the great merits of the book. Mr. Rowntree's task in 1936 was incomparably more difficult than in 1900, and it is difficult not to feel admiration for the very careful, painstaking and thorough analysis that he has prepared. Most of the social surveys in this country have been undertaken with the backing of universities or societies interested in social questions, but the author has accomplished his task single-handed. *Poverty and Progress* will remain a document which those interested in social questions will have to consult for a long time to come.

E. GREBENIK.

Social Science Principles in the Light of Scientific Method with Particular Application to Modern Economic Thought. By JOSEPH MAYER. Duke University Press, Durham, N.C. 1941. xxii + 573 pp. $4.00.

The strongest feeling of the economist about the present book, as is true of so many similar attacks directed against traditional economics in the name of "exact science", must be one of regret that the author understands economics so little that any discussion, instead of proceeding to the central methodological issues, must be directed to clear up his main misunderstandings. It seems almost as if prepossession with the methods of the natural sciences tended to incapacitate most people for the understanding of even the simplest propositions of economics. And, as is also so often true of similar attempts to reform economics on "scientific" lines, the pretentious claims to novelty and revolutionary improvements, coupled with a very meagre knowledge of the literature of economics (only imperfectly hidden by a display of erudition in long lists of books in footnotes which bear all the marks of the work of an assiduous assistant rather than of use and discriminating selection by the author himself), do not invite the careful examination which, with a more competent exposition of the same general point of view, could be most instructive and useful.

The general methodological views of the author are a Comtean positivism of the crudest sort, although he appears to know what he calls "the profound methodology of Auguste Comte" mainly through a potted version in the "casebook" on *Methods on Social Science.* The social sciences are based on the natural sciences, particularly biology and psychology, and could not be created before these other sciences because, just as the "biological phenomena are more complex than chemical or physical phenomena", thus "sociological phenomena are more complex than psychological and biological phenomena" (p. 16). Because of this hierarchy of the sciences, "the most important elements of formulating essential techniques and concepts of social study" are to be found in the field of biology and psychology (p. 37), and students of social phenomena who have had no training in these empirical sciences are "incompetent", etc., etc.

The "scientific" approach which the author champions characteristically leads him to regard "society as an 'artificial creation' much as an automobile or a steel mill is ", a conception which, consistently developed, would of course imply the denial of the existence of a great part of the problems with which economics is concerned. Equally characteristic, and an even more important cause of his inability to understand much of current economic theory, is the author's belief that all science must deal with " objective facts " in the specific sense in which this concept is used in the natural sciences. It is this view which seems to explain at least two of his main aversions in economic theory, that to the doctrine of the " mutual advantage in exchange " and that to the doctrine of " decreasing utility ", to the refutation of which a large part of the book is devoted. But as he just does not understand that the concept of " advantage " or " utility ", which any attempt to understand human action must use, must necessarily be the subjective advantage or utility which the individual deciding on an action at that moment expects to derive from it, all Dr. Mayer's argument completely misses the point of the theory he attempts to refute. His whole discussion of the relation between utility and demand, quite inadequate as it is even in so far as the older marginal utility analysis is concerned, betrays moreover a complete ignorance of modern development in this field. Dr. Mayer's third main idiosyncrasy in the sphere of economic theory is based on an even more complete misunderstanding; his criticism of the opportunity-cost doctrine (or opportunity-lost doctrine, as he prefers to call it) is based on the belief that opportunity cost means not the alternative good that might have been obtained instead of the one actually made, but the *cost* of that alternative good (pp. 93–95). It is of course easy to demolish such a doctrine which is a caricature of that employed by economists.

A great deal of the further discussion of economic theory in this voluminous work is merely a rehash of the views of T. Veblen (" with whom a new era of economic thought may be said to have begun in the United States ") and W. C. Mitchell, although these eminent authorities must not be blamed for all the crudities perpetrated by the author. To these basic influences must be added that of the philosopher R. B. Perry, whose views on value are fairly fully reproduced *verbatim* in what is much the most interesting part of the book. It would lead too far to show in any detail how from this foundation our author is led to see the promise of a new economics according to his own heart in the Brookings investigation on *Income and Economic Progress* and in Mr. Keynes' *General Theory*. Although at least in the former instance the kinship between the kinds of views expounded in the present book and those underlying the work of H. G. Moulton and his associates is undeniable, support from this quarter may help to explain and to increase the popularity, but will hardly assist to establish the validity of those works, whatever their future will otherwise be.

F. A. HAYEK.

Money and Banking. By J. MARVIN PETERSON, DELMAS R. CAWTHORNE and PHILIPP H. LOHMAN. New York: The Macmillan Company. 1941. xviii + 742 pp. $3.75.

An Introduction to Monetary Theory. By LESTER V. CHANDLER. Harper & Brothers, Publishers. 1940. xi + 216 pp. $1.50.

These two new American text-books are as dissimilar as they could be, but each has distinct merits in its own class. Both have the physical qualities we have come to expect from American publishers—good paper and clear and individual typography.

Money and Banking avowedly concentrates on description rather than on theoretical analysis. The usual difficulty of arrangement—the need to know something of money before the student can understand banking, and something of banking in order to explain money—is tackled by prefacing an introductory section on the functions and embodiments of money to a lengthy review of banking (mainly American) in practice. There is then a return to money for a discussion of its value, and of the money market and international exchanges. An allusion to recent theory, perhaps too brief to be very helpful, winds up the whole.

Within its range, the description has been well done and has been cleanly brought up to date. Naturally its chief preoccupation is with the monetary system of the United States. To the British student in search of a reasonably compact study of American conditions, down to the middle of 1940, Chapters 4, 6 and 7 (History), 18 (Agricultural credit), 24 (The money market) and 28 (Treasury intervention) will provide a useful introduction.

The book's defects are mostly the outcome of its qualities, and in particular of its determination to avoid dogmatism. Its quotations are a case in point. It is certainly a matter of opinion to what extent verbatim extracts are useful in a text-book, but the advantage of quoting original authorities is often undoubtedly overborne by the extreme difficulty of incorporating their arguments smoothly into the book's own text. Apart from this, however, quotations of the length and variety utilised in the present work tend to expand its size and therefore its cost. A textbook of 700 pages, at a price of 15s., is apt to be rather daunting to the first-year student for whom it is presumably intended.

An Introduction to Monetary Theory has a very different purpose, and in effect begins where *Money and Banking* leaves off. The ideal text-book bridging the gap between the statics of elementary monetary theory and the dynamics of Trade Cycle theory has yet to be written; but Professor Chandler has given us an excellent first approximation. While there is nothing particularly new in his material, he has succeeded in describing, succinctly and systematically, the main piers upon which this bridge has been built—index-numbers, the "Fisher" and "Cambridge" equations, the "savings = investment" misunderstanding, the "multiplier" and modern ideas about the rate of interest. A final chapter reproduces in an up-to-date form the standard arguments about the objectives of monetary policy.

Second-year students seeking enlightenment on the foundations of present-day monetary theorising can be unhesitatingly recommended to study this little book, whose only serious defect for this purpose is the exclusively American references which it contains. An English version of the "Selected Supplementary Readings" list would be desirable if the book is to command in this country the circulation which it deserves.

J. K. HORSEFIELD.

Les Fonds d'Egalisation des Changes et leurs Fonctions Economiques. By PAULA HORWITZ. Lausanne: F. Roth & Cie. 1940. 222 pp.

The eight years between the secession of Great Britain from the Gold Standard and the outbreak of the Second World War will long provide students of monetary experience with an admirably self-contained epoch. Amongst its most prominent features, whether regarded as a beneficent development of applied monetary theory, or as a disastrous apotheosis of nationalism, must be classed the institution of Exchange Equalisation Funds.

Like so many other adventures of the human intellect, the acceptance of these Funds as an integral part of the mechanism of monetary control owes a great deal to an accident of time. No such Fund has yet started life with the complete equipment needed for effective control—with adequate resources, that is, both in its domestic currency and in an international medium. Hence no Fund has been able, at its inception, to operate as a two-way control. Those possessing only domestic currency, such as the British, were powerless to prevent exchange depreciation; those with resources in gold, such as the American, could do nothing to stay an appreciation. But the British Fund was established at a moment when the pound was tending to appreciate, and was thus enabled to accumulate enough gold to achieve adequate powers of control. Thereafter it was in a position to develop that flexible technique of management which has demonstrated that the gold standard is no longer the only conceivable basis for permanent international currency relationships.

Since, however, the Funds are obliged to work in secret, we are indebted for an understanding of their mechanism to the intelligent guess-work of external investigators, aided, as far as the British Fund is concerned, by the confirmatory evidence of periodical, but belated, statistics. This ground, already worked over by Mr. F. W. Paish and Mr. L. Waight, has been re-traversed by Miss Horwitz in the book under review, which assembles in a systematic form the facts which are known and the surmises which have been based upon them.

As is natural in view of the available material, Miss Horwitz devotes the preponderant part of her space to a review of the British Fund, a detailed and well documented study of which occupies, indeed, three-quarters of the book. From this she brings out clearly the varied tactics of the British authorities, based upon their ability to act, at will, either through tender bills, tap bills, gold or Bank of England balances; either through the Bank of England or directly in the market. The strength and adaptability of this developed technique is well illustrated by a critical history of the severe exchange pressures of 1936 and 1938.

It must, however, be noted that the student of these problems will not find here quite the full study which the title promises. The stories of the Funds of other countries are very briefly told, and the analysis of the economic functions of even the British Fund does not go very deep. Miss Horwitz has written a contribution rather to Economic History than to monetary theory. To link these various mechanisms with the dynamics of the national income is a task for the future.

J. K. HORSEFIELD.

Soviet Economy and the War. By MAURICE DOBB. London: Routledge. 1941. 88 pp. 3s.

In his introduction the author stresses that his book "does not claim to do more than collate material that is familiar enough to those who have made any study of the subject in recent years, and to do so with a minimum of comment and of theoretical generalisations. . . . A hasty product of the present emergency, it is fashioned in the hope that it may prove of some little use to those who, amid the preoccupations of wartime, have not the leisure for fuller study of source-material."

This introduction is too modest, as the author not only carefully collected very rich informative material but has presented it as a systematical survey of the main features in the development of Soviet Economy and has also succeeded in elucidating some very essential features of the Soviet economic system. The book is written in a very compact form and gives more information than many books which discuss the same subject on hundreds of pages.

Facts in general are presented correctly and the interpretation of the main events in Soviet economics is not far from reality. Only as regards one main point can the information given by this book be considered as not quite corresponding to actual facts. I mean the figures concerning the growth of industrial production and national income, calculated in roubles of the 1926–27 value. There is some exaggeration in the coefficient calculated on the basis of the 1926–27 rouble. Certain indexes show this irrefutably. But Soviet statistical sources have not published any price indexes since 1931, and they have not given comprehensive information about the methods of calculating gross production and national income in roubles of the 1926–27 value. It is not the fault of the author that he takes these figures too literally. The exposition by the author of the motives for the decision to " complete the five year plan in four years " is also not quite correct. (See page 19.) This slogan was put up in the summer of 1930 after realising that in 1929 actual production exceeded the planned estimate. The " interim quarter " was introduced not at the end of the five year plan, but from the 1st October, 1930, to the 31st of December, 1930. This was done for the purpose of filling the gap between the planned estimate of the rise of production and the actual production in 1930 and also as a means of transition from the previous so-called " economical " year (from October to October) to the normal calendar year. There are a few more minor inaccuracies in the presentation of facts (for example, the data on page 62 do not concern the *typical* Kolkhoz, but represent the average for 173,000 Kolkhoz inspected in 1938 !).

Some other errors as regards facts and the comments on them are evidently entirely due to the incompleteness and vagueness of literature and sources which the author was able to use. These errors, however, in no way diminish the value of this little book, which broadly embraces the most essential events in Soviet economy. It can be recommended to anyone who is interested in getting information about Soviet economy on the eve of the present war.

ALEXANDER BAYKOV.

Economic Problems of Modern India. Vol. II. Edited by RADHAKAMAL MUKERJIE and H. L. DEY. Macmillan & Co., Ltd. 1941. 498 pp. 15s.

The second volume of the symposium on modern Indian economic problems, edited by Professor Mukerjie and Dr. Dey, consists of three parts, dealing respectively with " Industry and Labour ", " Currency and Banking ", and " Public Finance ". It contains many interesting and instructive chapters, and can be heartily recommended as providing (with its companion volume) a stimulating commentary upon most of the outstanding features of Indian economic life and organisation before the outbreak of the present war. The Editors do not reveal their intentions as to the ultimate size and scope of the work, and it is not even certain that further volumes have been planned. It may be suggested that, even if it is not desired to continue the story beyond 1939, a further volume should deal with (*a*) India's economic (and especially industrial) potentialities considered as a whole ; and (*b*) a plan for the future, containing more specific suggestions than those contained in Professor Mukerjie's " Preface to Planning " which introduces the present volume, and more up-to-date information and recommendations than those given in Chapter XXV on "Economic Planning". It must, however, be admitted that these topics can hardly be treated adequately or realistically in the absence of some account of India's war-time organisation and development. Hence it may be hoped that the Editors will see their way to providing both a "war-time" volume, and a final volume summarising their conclusions and recommendations and, in general, providing that unity which so far is somewhat lacking.

The volume at present under review gives the impression more of a collection of essays and articles on particular topics than of an integrated whole. The individual chapters vary greatly in quality, scope and method. Some—for instance Chapter XX on "Mineral Resources" and Chapter XVIII on "Cottage Industries"—are confined almost entirely to a summary of facts and figures; others—for instance several of the chapters on currency questions—are mainly concerned with one or two controversial problems, particularly with the rupee ratio controversy. In this connection may it be suggested that, although the authors of Chapters XXVII and XXVIII make out a strong case in criticism of the official policy, they reveal some lack of a sense of proportion in giving such great prominence to this one aspect of the whole question? One cannot help feeling that the rupee ratio is discussed at a length out of all relation to its intrinsic importance, merely because it is controversial. Dr. Dey, on the other hand, in his admirably clear and concise exposition in Chapter XXVI, puts the question in a nutshell and in a well-balanced manner.

Mr. Saksena's chapter on "The Cost of Living and Wages" contains an interesting estimate of the course of the real wages of industrial workers. The chapters on Emigration and Local Finance also deserve special mention as they deal ably with important but usually neglected topics. Mr. Datta's chapter on "Recent Trends of Indian Prices" shows how greatly India has suffered from price trends since 1920, but would have been still more illuminating had comparison been made with other agricultural countries (such as Australia or Malaya) instead of mainly with highly industrialised countries. Professor Karve's contribution on the "Reform of Taxation" contains many valid and important criticisms of the existing tax system, but also contains highly controversial and in some cases confused comments, especially with regard to the land tax.

Vera Anstey.

Provincial Debt Legislation. By N. G. Abhyankar. Federation of Indian Chambers of Commerce and Industry, New Delhi, India. 1941. 102 pp. 1s. 6d.

The serious and often permanent and ruinous indebtedness of a large proportion of her agricultural population has long been one of India's most intractable problems. Agriculture was a transferred

Provincial subject under the dyarchical constitution resulting from the Montford Reforms, so that the problems of rural credit and indebtedness attracted the attention of Indian Ministers from the first. Since the onset of the great depression of the early nineteen thirties the problem has become far more acute, and there has been a danger of the creation of a large class of peasants dispossessed of their land. In nearly every Province, therefore, legislation has been introduced—especially since the introduction of Provincial Autonomy in 1935—with the objects of scaling down debts, regulating money-lending, and safeguarding the person and property of the debtor against undue exploitation by the creditor. An extremely useful guide to this mass of legislation, its effects and defects, and to the nature of the problems involved, has been provided by Mr. Abhyankar, under the general direction of the Research Sub-Committee of the Federation of Indian Chambers of Commerce and Industry. He examines, systematically, the problems of short and long term debt, and the measures most likely to provide a remedy, and makes a number of extremely sensible recommendations embodying the experience to be gained by examining the results of the various measures adopted in different Provinces.

The whole subject of agricultural credit has been extensively discussed on many occasions, and Mr. Abhyankar necessarily traverses some well-worn ground, but this is much the most concise and helpful analysis of the problem that I have yet seen, whilst the detailed recommendations include realistic and wise suggestions that deserve widespread attention.

VERA ANSTEY.

Railways in Modern India. By R. D. TIWARI. Bombay: New Book Company. 1941. 281 pp. Rs. 10.

Mr. Tiwari is concerned to develop India's trade and industries in such a manner as not only to improve her own economic resources, but to provide a basis for the reconstruction of healthy international relationships, and rightly points out that communications play a fundamental part in promoting national economic development. In his book *Railways in modern India* he is mainly concerned with two aspects of the railway problem: first, the need to prevent cut-throat competition between the various means of transport—especially, of course, between rail and road transport; and second, the need to reform India's railway rates policy. In discussing these problems he starts by considering the place of railways in the general transportation system, comparing British with Indian conditions. Next he considers briefly the evolution of India's railway system and finance, with special reference to developments since 1918. He then examines the history and present position of India's system of railway rates, the control of railways by the State in India, and in conclusion makes a strong plea for the co-ordination of rail and road transport. His best chapter describes the growth of the railway rates policy in India, and exposes clearly the confusions and defects of the existing system. He is not so happy in his treatment of the more fundamental problems involved, such as what should be the basis of the railway rates structure, and the part played by competition in promoting economic development. On the former question he assumes as almost axiomatic that Government should control rates, and fails even to consider the possibility that freedom to experiment in rate-fixing, for road and railway transport alike, might be the best way to discover what are the " proper spheres " of each, whilst he is extremely confused about the advantages and disadvantages of competition. At one point he refers to and illustrates the advantages accruing from competition (between railways), whilst elsewhere he simply designates competition between road and rail transport " unhealthy rivalry ", and speaks of it as " cut-throat " or " destructive " without any attempt even to define these terms. Even where one agrees with his conclusions, which indeed include many sensible recommendations which are likely to meet with a large measure of assent, one wishes that he had examined more fully the general principles upon which railway policy should be constructed. The facts and figures quoted are, in the main, reasonably up-to-date, but it is disappointing that the importance and probable effects of the establishment of a Department of Communications in 1938 should not be discussed. It is also unfortunate that no bibliography is provided, and that printing errors should be so frequent—including a misleading presentation of the table of maximum and minimum rates and fares on p. 208. But in spite of these defects the author's recommendations for reforms are in many cases clearly argued, notably with reference to the need for an expert and independent railway rates board, and for the completion of the separation of railway from general finances and hence for relieving the railways from making any contribution to the general revenues.

VERA ANSTEY.

SHORTER NOTICES

Business Cycles and Their Causes. By WESLEY CLAIR MITCHELL. A new edition of Mitchell's *Business Cycles : Part III.*" University of California Press, Berkeley and Los Angeles, and Cambridge University Press. 1941. xii + 226 pp. 18s.

No economist need to be told the importance of the work of which the part which the author thinks still most relevant is now reprinted. What we have now before us contains less than a third of the famous unwieldy quarto volume which for twenty years has been a great rarity. But although those who have no ready access to the original edition will regret that only a part has been reprinted, the decision was probably a right one. While the first two parts of the original work, which contained a summary of the leading theories of business cycles current in 1931 and a year-to-year account of cyclical fluctuations from 1890 to 1911, are now mainly of interest to the specialist, the description of what was regarded as the typical pre-1914 business cycle which Part III offered under the title of "The Rhythm of Business Activity" is still of much wider interest. It is only in re-reading it that one becomes aware how much it has influenced most theoretical work done in the field during the last twenty-six years. And while a reprint of the whole work would inevitably have only a limited circulation, in its present more handy and cheaper form it will no doubt be widely read.

It is with regret that one learns from the Bibliographical Note preceding the volume that Professor Mitchell's new volume on the Rhythm of Business Activity, first promised in 1927, will not appear for several more years, if at all.

Socialism, National or International. By FRANZ BORKENAU. George Routledge & Sons, Ltd. 1942. x + 172 pp. 5s.

This small book contains an acute and important analysis of the factors which have led socialist movements everywhere progressively away from internationalism and towards a more and more strongly marked nationalism. As one expects from the author of *The Communist International*, the admirable marshalling of the historical facts makes his new work most instructive reading. As the book is admittedly mainly addressed to members of the labour movement, it takes inevitably certain policies for granted and this makes it not very suitable for an examination of its argument on purely scientific grounds. Nevertheless one might wish that the level of its economic reasoning were quite up to the high standards of its sociological and historical argument. A great deal of the author's conclusions is, *e.g.*, based on the assertion that "if all restrictions on trade and migrations were abolished at a stroke, hundreds of millions of men would die from starvation at once, and the rest would be reduced to utter misery." It seems doubtful whether a single competent economist, however protectionist in his general leanings, could be found who would agree with this contention.

Un Manuscrit Inédit de David Ricardo Sur le Problème Monétaire. By EDMUND SILBERNER. (Extrait de la *Revue d'Histoire Economique et Sociale.*) Paris (Marcel Rivière). 1940. 65 pp.

Ricardo's notes on the French text of Bentham's treatise on prices, which have been known to exist for some time, have now been edited with an introduction by Dr. Silberner. Since it is known that they are to be included in the forthcoming edition of Ricardo's works prepared by Dr. Sraffa, there was perhaps no great need for this publication and the effort might have been better spent in editing the body of Bentham's manuscript. But as it may yet be some time till the final edition in the *Works* will be generally available, some readers might like to know that Ricardo's notes are now available in this form.

Dynamic Administration, The Collected Papers of MARY PARKER FOLLETT. Edited by Henry C. Metcalf and L. Urwick. Management Publications Trust, Ltd. 1941. 320 pp.

For a competent appreciation this book, evidently important in its special field, may well have to wait till the experts on Business Administration are once more free for literary work. But this is no reason why the attention of wider circles should not be drawn to it at the present stage. While most of the book deals with various aspects of business administration in the form of occasional papers and addresses (some covering much the same ground as the Lectures delivered by Miss Follett at the London School of Economics in 1933), they are throughout treated from an angle which give them considerable interest to any student of social problems. And the last paper in the volume, entitled " Individualism in a Planned Society ", is a most valuable contribution to a problem with which economists of late have been much concerned. While in general favourable to some kind of planning, Miss Follett yet expresses " grave doubts whether ' central ' planning, as at present conceived by many, will bring us any appreciable degree of co-ordination." And the qualified approval bestowed on national planning is conditional on the previous solution of a formidable series of 18 problems, one of which is " the relation of control to competition ".

If Miss Follett's suggestions perhaps sometimes lack the precision which the economist would wish, her papers are without exception thoughtful and stimulating and deserve to be widely read. The editors, who had to select from a much larger amount of material left by Miss Follett at her death in 1933, have devoted much care to their task and the Introduction and the Bibliography at the end of the volume will be welcomed by those who will want to know even more of Miss Follett's work.

The Oilseed Trade of India. By J. C. BAHL. Bombay: New Book Company. 1938. xvi + 314 pp., maps and diagrams. 30s.

Mr. Bahl's systematic and comprehensive survey of production and trade in Indian oilseeds was first published in 1938, and it is satisfactory to note that a second edition has already been required (date not given). The author describes fully and carefully the whole process of the production and marketing of oilseeds in India, and examines the main facts and figures in the light of world statistics and conditions. The chief merits of his book are that it forms the first comprehensive survey of the subject—a rather surprising fact in view of the importance of oilseeds (including rape, mustard, linseed, groundnut, castor, coconut, sesamum and cotton-seed) in India; it provides admirable tables, charts, diagrams and maps showing the situation at a glance; and it gives first-hand descriptions of methods of marketing. In view of the large field covered it seems ungrateful to complain that the author has not undertaken a fuller analysis of some of the problems involved, but it may be suggested that he should follow up his admirable descriptive work by another (shorter) volume, dealing more thoroughly with (for instance) the importance and effects of "future" dealings on the oilseeds markets, the long-run influence of Imperial preference (with special reference to linseed), and the merits and defects of present methods of marketing and finance.

The Second Yearbook of Research and Statistical Methodology. Books and Reviews. Edited by OSCAR KRISEN BUROS. The Gryphon Press, Highland Park, New Jersey. 1941. xx + 383 pp. $5.00.

This book consists of a collection of 1,652 excerpts from reviews of books dealing with statistical method, scientific method, social relations of science, collective biographies of scientists and general histories of science; a very heterogeneous field. A random inspection shows the following titles, whose reviews are printed: *Linguistic Aspects of Science*, *Chemical Computation and Errors*, *Application of the Analysis of Variance and Covariance to Educational Problems*, *Research Methods in History* and *Mathematical Biology*. There will be few persons whose interests are sufficiently catholic to include all these fields. One is therefore tempted to ask whether a compilation of this type is really useful. Those who, in the course of their professional duties, have to keep up with modern statistical literature will most probably have read one or two of the reviews in the technical journals, and it is questionable whether a knowledge of all the reviews (which are frequently contradictory) will enable them to form any more complete judgment of the merits and demerits of a particular book. Moreover, as the reviews deal with a very wide field of studies and as articles appearing in journals are not indexed, the book cannot be said to fulfil the function of the abstracts, which are familiar to natural scientists. The book is beautifully printed and produced, and an immense amount of work must have been expended in collecting the reviews. One could wish it had been spent in a better cause.

Books Received

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DAVIS, H. T. : *The Analysis of Economic Time Series.* The Cowles Commission for Research in Economics. The Principa Press, Inc., Indiana. 1941. xiv, 620 pp.

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METCALF, H. C., and URWICK, L. : *Dynamic Administration.* Management Publications Trust, Ltd. 1941. 320 pp. 10s. 6d.

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National Income in America and the United Kingdom[1]

By A. L. Bowley

Mr. Kuznets' Report for the National Bureau of Economic Research[1] gives an authoritative estimate of the National Income of the United States and its movement from 1919 to 1938. His definition for his major totals is " National Income is the net value of the services individuals and their property contribute to the production of economic goods ; or the value of the commodities and services produced by the country's economic system minus the costs of the commodities (raw materials and capital equipment) and of services of enterprises consumed in the production process." It " may also be described as the sum of all payments by enterprises to individuals . . . and of the savings of enterprises after all costs and disbursements sustained in the production process have been deducted ". This is broadly the same definition as that adopted by English writers, though there is room for much variation in detailed interpretation, which affects significantly direct comparisons between the two countries in any one year ; but for comparison of the movements over a series of years, when the delimitations chosen are rigidly adhered to in each country, any discrepancies in exclusion or inclusion of special categories become relatively unimportant. In some treatments of income in the United States the changes in the value of capital, as indicated by stock exchange prices, have been included in changes of money income, and when this is done the picture of the movements in depression and boom is very materially altered. We are not, however, faced with this difficulty in Kuznets' study, and the statistics in the adjoined Table that show the movements up and down in the period 1926–1938 may be used with reasonable confidence. On the other hand, we ought not to make direct comparisons such as, in 1938 income per head was $500 in U.S. and £90 in U.K., without minute attention to definition ; still less should we affirm that at the current rate of exchange (£1 = $4.9) income per head in U.K. was 88 per cent. of that in U.S.

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[1] *National Income and Its Composition, 1919–1938*, by Simon Kuznets, assisted by Lillian Epstein and Elizabeth Jenks. National Bureau of Economic Research, New York, 1941. Two volumes, pp. xxx + 980. $5.00.

It is clear from Column I of the Table that money income increased rapidly from 1921 to 1926 and made another upward spurt in 1929.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Money Income				*Real Income*			
	U.S.A.	*U.K.*	*U.S.A.*	*U.K.*	*U.S.A.*	*U.K.*	*U.S.A.*	*U.K.*
	$ billion[1]	*£ million*	*Per cent. of* 1924.		*Percentages of* 1924.			
					Total		*Per head*	
1919	64.2	—	89	—	79	—	86	—
1920	74.2	—	103	—	81	—	87	—
1921	59.4	—	83	—	79	—	82	—
1922	60.7	—	84	—	85	—	87	—
1923	71.6	—	99	—	99	—	100	—
1924	72.1	3900	100	100	100	100	100	100
1925	76.0	3800	105	97	103	102	102	101
1926	81.6	3750	113	96	110	99	107	98
1927	80.1	3900	111	100	111	107	107	106
1928	81.7	3925	113	101	113	107	107	106
1929	87.2	3925	121	101	121	111	113	109
1930	77.3	3800	107	98	111	107½	103	105
1931	60.3	3450	84	88	97	105	88	102
1932	42.9	3325	59	85	78	105	71	102
1933	42.2	3550	59	91	79	109½	71	106
1934	49.5	3700	68	96	87	115	78	111
1935	54.4	3925	75	101	91	120½	81	115
1936	62.9	4150	87	107	105	125	92	120
1937	70.5	4350	98	112	113	127	99	121
1938	65.5	4350	91	112	110	124	96	117

Column 1 is given by Kuznets, p. 137. Columns 3, 5, 7 are computed from his Tables, pp. 147–153. He obtains the data for Column 5 by dividing Column 1 by an index of prices. For Column 7 the whole population of the United States is used.

Column 2 is from *Royal Statistical Society's Journal*, 1940, "Some Constituents of the National Income," by A. L. Bowley, p. 517, Table IX, Total B. The entries for 1937, 1938 are revised in accordance with statistics in the White Paper Cmd. 6261.

Column 6 is from *Studies in National Income*, p. 192. Cambridge University Press. 1942. Edited by A. L. Bowley. The basis is an Index of Production of goods and services. Column 8 is deduced from Column 6. The estimates are of course subject to considerable margins of error.

[1] 1 billion = 1,000 million in U.S.

During the next four years the statistics indicate that income was halved. The recovery to 1937 did not bring the total to that of 14 years earlier. The amplitude of these movements is modified when the figures are adjusted by a price index (Column 5); the increase from 1921 to 1929 is greater than before, but the fall to 1933 is one-third instead of one-half. The recovery in total real income, thus measured, brings the index in 1937 to the level of 1928, and 14 per cent. above that of 1923. Another view is obtained when we deal with income per head (Column 7), also with price changes eliminated. With the growth of population rises are damped down and falls accentuated. In the period 1924–1938 in the United States Total Money Income fell 9 per cent., total "real income" rose 10 per cent. and real income per head fell 4 per cent.

In the United Kingdom Total Money Income was nearly stationary from 1924 to 1929 (the fall in 1926 being attributable to the coal and general strike of that year); the fall in the next three or four years was only one-sixth, and the subsequent recovery brought the figures to 11 per cent. above that of 1929. Through nearly the whole of the period prices were falling, and " real income " in total and per head, thus measured, were in 1938 respectively about 24 and 17 per cent. higher than in 1924. The contrast between the changes in the two countries is so marked that no adjustment of definitions or of methods of estimate can explain it away.

We pass now from the general results to questions of detail. Income of residents from property abroad is included, that of non-residents from property in the States is excluded. Activities, such as those within a household, are not included; " the only non-monetary items included are goods retained by producers for their own consumption, payments in kind by enterprises to ultimate consumers and imputed income of owner-occupied houses." Governmental services are valued " at the total payments made for them by individuals and enterprises respectively " in the form of taxes, fees, etc.; this is chosen in preference to taking the cost to governments of services and goods they use. " Mere changes in capital value due to changes in monetary conditions or to extraordinary events that cannot be anticipated or regarded as calculable hazards of productive activity were not considered part of production," and were not included. The definition is practically equivalent to that commonly used in the United Kingdom in those estimates where transfers of income not in return for services are subtracted.

Though the definitions ostensibly cover the same period for the two countries, the methods of approach are radically different. In the United Kingdom, except for returns of profits from companies under Schedule D and Schedule C, the estimates are mainly based on individuals' incomes, as reported for Income Tax, and separate estimates for salaries and wages. These methods cannot be used in the States, nor can Kuznets' method be used here, for want of adequate statistics. Kuznets proceeds by aggregating returns reported annually by " enterprises " to the Bureau of Commerce, and published periodically under " Statistics of Income "; where these are not complete for his purpose, he uses information and estimates from other sources, which are set out in detail in Part IV of his book. In Part II the results are given under 10 main headings. Some results, for the first and last years of his period, are :—

Percentage Distribution of Income according to Source

	1924	1938
Agriculture	16.5	8.4
Mining	2.7	1.7
Manufacturing	24.6	19.4
Construction	3.0	2.6
Transport and other Public Utilities ..	9.0	8.5
Trade	15.5	14.3
Finance	10.3	10.1
Services	9.3	13.7
Governmental	5.7	16.7
Miscellaneous	3.4	4.6
	100.0	100.0

The changes over the period—relative (or absolute) decline in Agriculture and indeed in all but the last three divisions—are very striking. Relief payments, which increased from $59Mn. in 1931 to $2,621Mn. in 1938, are included under Governmental; but excluding them, Governmental Wages and Salaries increased from $3,646Mn. to $5,862Mn. in the period and interest from $1,044Mn. to $1,689 Mn.

The Services division includes incomes from professions and a great miscellany of direct services not included under other divisions. The estimates are from various services which are given in detail on pp. 767–807. A more general heading of service, as contrasted with production, would include a considerable part of all except the first four divisions in the Table just given.

Rent, if not included in income arising from enterprises, etc., under other headings, is treated as property income in the real estate industry, and real estate together with banking and insurance comes under Finance. In 1938 net income originating from Finance consisted of banking $814Mn., insurance $1,274Mn. and real estate $4,462Mn.

In each of the major and minor divisions income is separated according to its Distribution, under the headings Wages and Salaries, Other payments to employees, Entrepreneurial withdrawals, Entrepreneurial savings, Rent, Dividends, and Corporation and Governmental Net Savings. The divisions are not, however, clear cut. Salaries are not in general separated from wages, and there is no clear distinction between a highly paid salaried executive and an entrepreneur, nor between operatives and farmers in agriculture. Entrepreneurial withdrawals mean the money taken from the business by employers for their private use; the figures can only be obtained by broad assumptions and estimates; the results are said to be "extremely crude" (p. 405), and in these circumstances it seems a pity that so much space is devoted to them. The analysis that relates to distribution is so complicated and in many respects so inconclusive that it is not possible to summarise it, nor to compare it safely with any corresponding figures for the United Kingdom. The detail can no doubt be used for special purposes; it occupies pp. 539–847.

Real Income. The totals for National Income are converted by index-numbers of prices to their value at 1929 prices. Two index-numbers are considered; the first is the Bureau of Labour Statistics (B.L.S.) cost-of-living index adjusted by other estimates for the agricultural community; the second was based largely upon the price adjustment work in the author's *Capital Flow and Capital Formation*, together with estimates for rent, fuel and services. The details are not given—the only case where the statistical tables are not superabundant—and it is hardly possible to criticise them. The average of the two index-numbers (which in 1936 and 1937 differ by 6 per cent. from each other) is used for adjusting the totals for "Consumers'

Outlay ”, that is in effect total income less investment in durable goods. Modified index-numbers are used for income including investment. The results are as given in Columns 5 and 7 in the Table above. In selected years we have :—

	Total Income *\$ billion*	*Price Index*	*Total Income at 1929 prices* *\$ billion*	*Per head* \$
1924	72.1	100.4	71.7	633
1929	87.2	100.0	87.2	716
1933	42.2	74.4	56.7	451
1938	65.5	82.8	79.0	607

No doubt the data are sufficient to show that the fall and rise from 1929 to 1938 was partly a price phenomenon and that real income per head was no greater in 1938 than in 1924. But there are three major criticisms of the method. First the B.L.S. index is based on a fixed budget, and no attention is paid to modifications of the change of pattern of expenditure, such as are indicated by a comparison of Laspeyre's and Paasche's formulæ, and in relation to which there is a copious literature. Secondly there is no analysis which compares the purchases in the budgets used by the B.L.S. with the goods produced by enterprises ; the “ coverage ” may not be the same. Thirdly, there is no comparison with any index of production.

The third criticism may be developed. If we write in general terms Q, q, for quantities in the first and last year, and P, p, for their prices, we have :—

Income-index $= 100\Sigma\,(pq) \div \Sigma\,(PQ) = V$
Price-index $= 100\Sigma\,(pQ) \div \Sigma\,(PQ) = I_1$, or $100\Sigma\,(pq) \div \Sigma\,(Pq) = I_2$
Quantity-index $= 100\Sigma\,(Pq) \div \Sigma\,(PQ) = J_1$, or $100\Sigma\,(pq) \div \Sigma\,(pQ) = J_2$

Then $V = \frac{1}{100} I_1 J_2 = \frac{1}{100} I_2 J_1$

J measures real income, for Kuznets' method is to compute V and I separately, and take the index of real income (or “ income at 1929 prices ”[1]) as $100V \div I = J$.

Now very many difficulties are eliminated if we compute J directly ; and at the same time such a computation, with the difference between J_1 and J_2, brings out the essential ambiguity or indefiniteness of the conception of real income and of the process of eliminating price changes.

It may be suggested to the National Bureau to study the relationship between the existing index of production in the United States and the estimate of the movement of income at 1929 prices given in this book.

Reliability of the Estimates. Chapter XII is devoted to estimating margins of error in very many of the statistics given. The " probable maximum error " for the change in total income is given as about 20 per cent. for any one year. If this statement is taken literally, it suggests that the enormous labour spent in producing this book was largely wasted. The author is indeed pessimistic—" As to the possibility that the usefulness of the estimates is fatally impaired by the wide margins of error attributable to them, the only relevant comment is that we believe our estimates to be as good as can be made from available data " (p. 536). But it is doubtful whether the procedure does lead to so wide a margin. Each of three investigators, who had detailed knowledge of the data and methods, set down for each of some 520 estimates in each of 20 years his impression of " the maximum to which the estimate was likely to be subject ", and their impressions were averaged (by geometric means !). For totals little attention seems to have been paid to the possibility that the errors in items may have cancelled each other, perhaps on the ground that very many errors were due to incompleteness of data, so that estimates may have been in defect rather than excess. The " maximum likely " is an ambiguous phrase, and we should be more interested in the errors which were probable. An error of 20 per cent. is much greater than that held to be attributable to British and other well-based income statistics, apart from differences in definition. It is surprising that the author does not consider that errors in comparisons over a period are significantly less than those attributed to one year (pp. 529–535). Since in most cases the estimates were derived from the same sources and under the same definitions year by year, it might be expected that errors of omission or in method would be of nearly the same magnitude and sign throughout, and consequently an error of the ratio one year to another would be small. Further, such errors are equally likely to be positive or negative, and their aggregate effect is better computed by the square root of the sum of their squares than by simple addition. It may be hoped in fact that the percentage series given in Column 3 of the Table above is much more accurate than Kuznets implied. If indeed the fall of 7 per cent. from 1937 to 1938 may mean anything between a fall of 27 and a rise of 13 per cent., then the whole book would be waste paper, except for its record of details.

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[1] Kuznets does not use the term “ real income ”.

The differences between the present estimate of total income and those current earlier by W. I. King, by the Department of Commerce, and in Kuznets' *National Income and Capital Formation* are analysed in Chapter X. They are largely due to differences of definition, and partly to better sources of information or more complete returns. Differences of definition may be very important. For example, if change in the Stock Exchange value of capital is taken as a change in income, total income in 1933 might appear to be negative. For 1921 King's estimate was $88 billion, Kuznets' $59 billion; the difference is partly due to King's treatment of net savings, partly to his inclusion of the annual value of durable goods accruing to owner-users, partly to many other details of definition and partly to less complete information. When King's details are re-assembled so as to be comparable in scope with Kuznets', the totals for 1921 are respectively \$61 and \$57 billion, and this margin (far less than Kuznets' 20 per cent. above) is of the order to be expected when, as for 1921, statistics were in many cases wanting.

As a note to this paper it is not out of place to deal with a special problem which has been brought to the foreground by the second White Paper on War Finance.

CHANGE IN VALUE OF INVENTORIES OR STOCKS OF MATERIALS

It is convenient to analyse Kuznets' and Colin Clark's treatments of this problem together.

The profits of an undertaking, after depreciation of fixed capital is allowed for, may be in part distributed as interest or dividends, part placed to reserve, and parts used in increasing fixed capital and in increasing stocks of materials.[1] In the measurement of the last named difficulties occur.

For simplicity of notation consider only one kind of material. Each term may then be regarded as an abbreviation for a composite aggregate.

Write q_0, q_1 for the quantities of material in stock at the beginning and end of a year, and p_0, p_1 respectively for the market or current prices per unit.

Then the increased value of the stock may be written

$$\begin{aligned} X &= p_1q_1 - p_0q_0 = (q_1 - q_0)p + q_1(p_1 - p) + q_0(p - p_0), \\ &= \tfrac{1}{2}(q_1 - q_0)(p_0 + p_1) + \tfrac{1}{2}(q_1 + q_0)(p_1 - p_0), \qquad (1) \end{aligned}$$

where p may be taken as any measurement of prices during the year. The first term is a measurement of the change due to increase of quantity, the second of that due to an increase of price.

Since in Kuznets' measurement of income changes in value of fixed capital due to market price movements are not included, he holds that, for consistency, change in the value of stocks due to change of price should also be excluded. Thus $(q_1 - q_0)p$ should replace X as the part of the income allotted to increase of stock.

Kuznets' definition of income is: National Income produced = value of commodities and services produced, less wealth consumed in this production, all valued at current prices.

The relevant part of Clark's definition[2] may be written: Income from an industry = surplus of proceeds over purchases, plus increment of stock, valued at the average current prices over the period.

Write S for value of sales, B for value of material bought, C for value of material consumed, D for value of increase in stocks $= B - C$.

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[1] Throughout the expression for increase may be negative, if in fact there is a decrease In the algebraic treatment this creates no difficulty.

[2] *National Income and Outlay*, p. 293.

Kuznets' definition then gives

$$I_1 = (S + D) - (C + D) = S - C = S + D - B \qquad (2)$$

since D is produced, and also used in production.

Clark's definition gives $S - B + D = S - C$

Thus the definitions cover the same values.

Write q for the quantity consumed in the year, bq for the quantity bought.

Then $q_1 = q_0 + bq - q$ (3)

For C, Kuznets considers that q should be valued at the average price of the year, $\bar{p}$, so that $C = q\bar{p}$, and $I_1 = S - q\bar{p}$. But according to him the prevalent practice in America is to take

$$C_1 = q_0 p_0 + bqp' - q_1 p_1 = B - X \qquad (4)$$

where p' is average price of purchases, so that income reckoned, as it is, from employers' reports is $I_2 = S - C_1$.

$I_1 - I_2 = C_1 - C$, and, eliminating b by equations (3) and (4),

$$= q_0(p_0 - p') + q_1(p' - p_1) + q(p' - \bar{p}) \qquad (5)$$

In the absence of evidence to the contrary, Kuznets takes $p' = \bar{p}$, so that he adds to the estimate I_2 the quantity

$$q_0(p_0 - \bar{p}) + q_1(\bar{p} - p_1)$$

This is positive when prices are falling throughout the year.

Clark's analysis takes a different course. For returns to Schedule D of the Income Tax, on which his figures are based, the manufacturer is permitted to return $X = p_1 q_1 - p_0 q_0$, or to reckon all stocks at cost value, whichever he prefers. Clark holds that he will choose the latter method if prices are rising, and states that in this case there is no difference between this and the true result. That is, he takes $D = (q_1 - q_0)\bar{p}$ as the method used by the employer in assessing cost. This differs from the American method described above,[1] which only gives the correct result if prices are stationary.

When prices are falling, X is chosen, and to get the true income there must be added $D - X = q_0(p_0 - \bar{p}) + q_1(\bar{p} - p_1)$. That is, the same correction has to be made to suit the British statistics as, for other reasons, to suit the American statistics. The American correction, however, is necessary also when prices are rising, for their estimate does not depend on anything corresponding to Schedule D.

The differences depend largely on the accountants' method of valuation. Clark appears to give no evidence[2] that the practice he names is that followed, or allowed by the Inland Revenue.

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[1] It is to be remembered that C_1 refers to the amount consumed, while D refers to the increment, and that $C = B - D$, $C_1 = B - X$, so that $C_1 - C = D - X$. The American method in fact uses the former of the two allowed for the British Income Tax.

[2] Mr. Maizel, who follows and extends his figures in ECONOMICA, May, 1941, p. 161, adds nothing on this point.

If the phrase "stocks reckoned at cost price" is taken literally as the original cost bale by bale we get a more complicated result, which is worked out in *Studies in National Income*, pp. 119–121.[1] This takes into account the relation of the stock held at the beginning of a year to the annual consumption, and also the lapse of time between the purchase and use of the stock. In some cases, which are not abnormal, Clark's conclusions are reversed, and in all are modified.

The use of the average price of the year for p' in equation (5) is open to criticism. For example, in Great Britain in 1938 prices fell during the first six months and were stationary or rising in the latter part of the year. If the stock existing at the end of 1938 had been bought during the latter four months the correction made in the White Paper Cmd. 6347, computed by Maizel, is on a wrong basis. For this year in Great Britain the figures are as follow :—

Prices :	1930 = 100		Difference
1937 Sept.–Dec.	$112.0 = p'$	Given $p_0q_0 = 1794$, $p_1q_1 = 1743$	$-51 = X$
1937 Dec.	$109.2 = p_0$	Hence $\bar{p}\,q_0 = 1701$, $\bar{p}\,q_1 = 1774$	$+73 = Z$
1938 Jan.–Dec.	$103.5 = \bar{p}$	and $p'q_0 = 1840$, $p''q_1 = 1750$	$-90 = \Upsilon$
1938 Sept.–Dec.	$102.1 = p''$		
1938 Dec.	$101.7 = p_1$		

Here Υ is the change in cost assuming that the quantities in stock at the end of the year were bought at the average prices of the preceding three months. According to Clark, the manufacturer chose X, while the true value is Z. But on the literal cost basis he would choose Υ. Possibly, however, he would take the current value at the beginning of the year, and compute $p''q_1 - p_0q_0 = -44$.

Kuznets, following Fabricant (*Revaluation of Fixed Assets*, Bulletin of the National Bureau of Economic Research, No. 62, 1936), makes the correction on the basis of average annual values for each industry separately. Clark, having estimated the aggregates for p_0q_0 and p_1q_1 on a sampling basis, adjusts the prices for the beginning, end and average for the year *en masse* by the Board of Trade Index of Wholesale Prices for Industrial Materials and Manufactures. This may introduce serious errors, since the increase or decrease of stocks in different industries no doubt varied, while the price changes also varied, and also the weighting for the Board of Trade Index is not the same as that used in Clark's computation.[2] The whole procedure lacks seriously in statistical precision.

Return now to the main problem of definition (equation (1)). There the change in the value of stock is separated into change due to quantity and change due to price. Though there is no logical defence for keeping the Schedule D method for computing the National Income, but only the pragmatical reason that the data for making correction are uncertain, it can be argued that part of the stock can be sold at the current price and the receipts used as income, so that

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[1] Now in the press.

[2] There is also the consideration that some manufacturers might find it advantageous to choose the formula X, others Z or Υ.

X gives the right formula in both countries. In fact there is no clear-cut distinction between change in value of fixed or working capital and income: it is a matter of convenience and definition. In a balance sheet that sets on the receipt side income and on the expenditure side consumption and savings, any variant of the distinction can be used and the totals still equal each other.

It may be remarked that the arguments in favour of this kind of adjustment are largely based on the need for adjusting money income by the movement of prices to get comparisons of real income over a series of years. Much of the difficulty can be evaded if we proceed directly to measure real income by its equivalent, viz., an index of production. Here money value only enters as weights. We still have the dilemma that the result is affected by the choice of the year for establishing the weights; but this is inevitable since the change of real income depends on the relative values which people assign to different goods at different dates.

The Sanctions for Privacy under Private Enterprise[1]

By W. H. Hutt

My object is to examine the sanctions for business privacy under what is called "private enterprise". I shall endeavour to show that, whilst privacy has traditionally performed an important but hardly noticed function, it has led to certain weaknesses in capitalistic organisation which are seldom discussed by critics of modern society.

That the works of the theorist economists have not forced the practising economists to face this issue appears to have been due to the inadequate attention which has been given to the *factor of knowledge* as an element in general equilibrium analysis. For firstly, traditional theoretical treatment has built on the convenient, but for the most part inappropriate, assumption "that the data . . . will be equally given to all individuals and that their acting on the same premises will somehow lead to their plans becoming adapted to each other"[2]; and secondly, whilst some of the "welfare economists" (most notably Edwin Cannan) have given adequate importance to the accumulated stock of knowledge as an element in man's *welfare*, insufficient attention has been given to the fact that the stock of knowledge as such (i.e. as opposed to "skill" in the sense of "knowledge assimilated for action") is gratuitous, and therefore not an economic good (although the accumulation of the stock may involve costs).

As theorist economists we have recognised that the process of decision-making is complicated by the fact that one person's decisions may be another person's data; and as practising economists we have tried realistically to face the consequences and avoid circular reasoning. But, as Professor Hayek has pointed out, we have not seen sufficiently clearly that the true concepts of data, "on the one hand in the sense of the objective real facts, as the observing economist is supposed to know them, and on the other in the subjective sense, as things known to the persons whose behaviour we try to explain, are really fundamentally different and ought to be kept carefully apart " ; and that one of the main problems which we have to answer is, " why the data in the subjective sense of the term should ever come to correspond to the objective data ".[1] Professor Hayek concludes that the problem of the *Division of Knowledge*, the fact that all individuals cannot know the relevant data of all fields, " is quite analogous to, and at least as important as, the problem of the division of labour " ; and the problem of division of knowledge ought really to be " the central problem of economics as a social science."[2]

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[1] This article represents a development and revision of ideas which I first explained in an article entitled "Privacy and Private Enterprise", published in the *South African Journal of Economics*, November, 1939. The Editors of Economica have honoured me by asking for a new exposition of this subject. I have included fairly long passages of the original article where my ideas have not advanced, and I must thank the Editors of the *South African Journal of Economics* for their permission to do so.

[2] F. A. Hayek, "Economics and Knowledge," Economica, February, 1937, p. 38.

Now I am concerned with certain of the institutional issues which these theoretical questions lead the student to consider ; and mainly with what I may call the negative aspect, i.e. the problem of privacy within the larger problem of access to, the accumulation of, and the productive use of knowledge in general. The appropriate collective functions of the State or other agencies in gathering and disseminating data is not my principal concern, although it is a very important part of the larger problem. Nor am I concerned with the full implications of the principle of *Division of Knowledge* as bearing on the relative efficiency of centralised and decentralised entrepreneurship, although the question should really be reckoned as fundamental in some of the major controversies of to-day.[3] What is the significance of *privacy* in relation to the data of decision-making ?

Let us first consider the *notion* of " private enterprise ". This has always been a common sense rather than a conceptually clear notion. " Private " enterprise has been contrasted with " State " enterprise. Sometimes it has been regarded as a system of economic organisation of which the *laissez-faire*, or individualistic, or capitalist doctrines approve. But no particular attention seems to have been centred on the problem of the nature of and the justification for *the attribute of privacy*. It is arguable that the term " private enterprise " has no necessary connection with the notion of privacy, but that it has really meant " individual enterprise ", which may be quite a different thing. But most people, if questioned about it, would certainly state that the sanctions for private enterprise involve the recognition of the desirability of privacy. On the face of it, however, the term hardly suggests a defensible social order. It implies that private rights or individual interests can be superior to the rights or interests of society; whilst liberal apologists for private enterprise must, in fact, plead that under that system the individual is most effectively subjected to the social will.

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[1] F. A. Hayek " Economics and Knowledge," ECONOMICA, February, 1937, p. 39.

[2] *Ibid.*, p. 49.

[3] I have touched on one aspect of that larger problem in my recent article in this journal, " War Demand, Entrepreneurship and the Distributive Problem " (November, 1941, p. 353). " The managements of firms are more likely to be in a position to understand the local supply situation in respect of labour, materials, housing, transport, etc., than any central administration ; that is, of course, provided that the State does its job of gathering and making known the main facts concerning national supplies. If the supply situation as a whole can be envisaged, the managements of firms will understand the cost significance of the relevant facts much better than would be possible for any centralised administration. All the war production problems must be solved in the light of detailed and local technicalities, the knowledge of which cannot be effectively centralised."

Privacy in general is demanded for several reasons. In some of its manifestations, the psychologists can help to explain it. Other aspects are of interest to the political historian. The historical philosopher would probably regard the demand for privacy as due mainly to the intolerance of man. And the grounds for this view are obviously strong. The right of acting according to one's own conscience, or of communicating one's private judgments, not only on religion, but on countless other subjects, can be secured only by secrecy in an intolerant society. And this right is widely treasured. It is a right which preserves independent judgment, opinion and conduct in a community in which the State, or individuals themselves (or the majorities which they form) are intolerant. History appears to record one long, chequered, yet gradually succeeding struggle against intolerance; and during those struggles secrecy has been, and still is, the bulwark of unshackled thought. Hence the growth of ideas concerning the sanctity of privacy is easily understandable. The community and the State have been feared as *inquisitors*.

Now the term " private enterprise " probably arose owing to the State having been feared not so much as inquisitor as *despoiler*. The objection to the State in this role gives rise to claims for a different sort of immunity. It is the individual's *property* which is claimed as *private*. He asserts the right to a certain autonomy in respect of the disposal and exchange of resources and services; and law and custom have accorded him this right.

What are the sanctions for and the defensible scope of *privacy* in respect of the diffused entrepreneurial power which makes up " private enterprise " ? To discuss this point, we must have some accepted ideal. Strange as it may seem, in many contributions relevant to this topic, the ultimate ideal is discernible only in the haziest form. The criterion of the social good which I propose to apply is that of " consumers' sovereignty ", which I have enunciated and explained elsewhere.[1] Applying this standard, we must regard property-owners as the custodians of the community's scarce resources. The powers they possess in dealing with these resources must be regarded as delegated to them by society in its consumer aspect. So conceived, the system which is variously known as " private enterprise " or the " private property system " is simply one in which the task of deciding upon action in response to consumers' will is diffused by a more or less automatic devolution throughout the community. For the property system is regarded (to use the words of Professor F. H. Knight) as but " one method of selecting, motivating and remunerating the functionaries who actually direct a social-economic organisation ".

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[1] *Economists and the Public*, Chapter XVI; " The Concept of Consumers' Sovereignty,' *Economic Journal*, March, 1940.

This being so, is there any case for the existing right to almost unlimited privacy in business matters ? That right is, of course, practically universally assumed to be an axiom of an individualistic society ; yet I feel that it is a right which must be sceptically examined. For, *prima facie*, there is no case for permitting the concealment of any knowledge which any individual may possess about the facts or results of the pricing system. I say *prima facie*, for the final conclusion of studies in this field may well be different. It is *possible*, for instance, that a sympathetic and discerning study of the psychology of individuals co-operating through exchange might disclose good and sufficient grounds for the careful guarding of the secrets which are usually hidden away in a firm's accounts. But I have certainly failed to trace any attempt to give adequate consideration to this problem. Moreover, I have also been unable to conceive of any arguments for the tolerance of business privacy that are not equally valid in defence of monopoly. Hence I am driven to the conclusion that there is a definite gap in recorded speculations in the philosophy of commercial institutions.

That existing practices in respect of business secrecy are indefensible has certainly been pointed out from time to time. In the United States, the right of secrecy in respect of corporation accounts has often been challenged by the more far-seeing critics of society. I do not know, however, of any contributions which have attempted to formulate general principles respecting such rights. All will admit that the activities and degree of success of *entrepreneurs* are a matter of social concern. Why, then, should knowledge of their activities and their successes or failures be withheld by those who possess it ?

Perhaps the most important bearings of this question have reference to the relative economies achievable through the co-ordination of production under independent and under centralised ownership, that is, the relative efficiencies of different entrepreneurial concentrations. Yet the problem has received hardly any consideration in discussions about the relative advantages of small and large firms. In my own judgment, it is lack of knowledge arising from privacy which constitutes the most obvious element of inferiority in the small enterprise. The management of an amalgamation (or sometimes even of a cartel) has an efficiency advantage over a number of separate competing or co-operant firms in the access it has to the accounts and plans of the associated firms. The degree of advantage which the large amalgamation obtains in this way is, of course, not easy to estimate. But it is clear that the most efficient *conceivable* working of society, from the purely administrative point of view, is one in which the privacy or secrecy which surrounds the affairs of " firms " has been overcome. Conventional business secrecy certainly appears to be inimical to the most effective functioning of contemporary institutions.

Among those who have recognised this point is Mr. H. D. Dickinson, who has argued that " the chief cause of the instability found under competitive conditions (*sic*) is the mutual ignorance in which competing firms work ; each plans for the market or introduces new methods without regard to the similar activities of the others."[1] But resistance to the idea of making public the internally acquired data of business is simply a form of *resistance* to competitive conditions. Mr. Dickinson stresses the wrong point. Indeed, however unconscious, *the masking of profitableness* appears to be the very motive for business privacy in most cases. Certainly the opposition to reforms attempting to mitigate conventional secrecy would be motivated mainly by fear of the competition which would be precipitated. If the argument for greater and more independent publicity is based on the necessity for protecting investors, one may expect considerable support. But if the same reform is advocated on the grounds that it would enable the better utilisation and co-ordination of productive activities, it is less likely to be sympathetically considered. " Ruinous competition " will seem to be threatened as soon as the general aim of any such reform is contemplated.

For the next stage of this discussion, let us ignore the conventional arguments in defence of " secret reserves " and assume that the full exposure of profitableness has actually been achieved. This involves the assumption that the technical difficulties of determining, from the point of view of an accountant, what constitutes " secret reserves " have been sufficiently overcome. To give objective clarity to the assumption let us imagine that auditors declaring profits have become independent State servants, and that, in the endeavour to abolish secrecy, the law has gone much further than insisting upon the revealment of profits, namely, that it has granted to the public, competitors, co-operant concerns, and consumers' organisations the right actually to have access (through expert agents if required) to the accounts of any private undertaking.

If such reforms were administratively and politically achievable, the social gain which would arise from them is obvious. They would enable entrepreneurs, whether standing in a competitive or in a co-operant relationship to one another, to make their plans and enter into commitments with access to incomparably more complete data. I do not propose to dwell on a host of misconceived objections which I anticipate will be urged against the suggestion of enforced and full publicity, namely, objections based on the usual misconceptions respecting competition. I shall also ignore certain valid objections to attempts to abolish privacy *suddenly*. (It is clear that even if indefensible in principle, business privacy is so bound up with institutions as they are that clumsy attempts to get rid of it would have effects worse than its presence. It cannot be too frequently emphasised that to strive blindly for the fullest effectiveness for competitive forces would be to court social disaster.) And I shall pass over other practical obstacles which must be overcome in reforms along these lines. My object in the remainder of this article is to deal with a fundamental difficulty which would arise if the dissemination of what is at present private knowledge were perfect.

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[1] H. D. Dickinson, *Institutional Revenue*, p. 130.

The chief question to which any discussion of the abolition of privacy must give rise is that of knowledge as property. For knowledge, unless it can be kept secret, is available for all. Hence, in a society in which secrecy was eliminated and in which monopolies were dissolved, could the function of adding to knowledge, at a cost, still be remunerated ? It is obvious that the *published* idea which can be easily copied is not *naturally* property. In the absence of patents or copyrights, it will have no more scarcity than that due to the costs of printing, or running libraries, or other means of disseminating knowledge. And although knowledge of this kind possessed by the community is of immense importance to general well-being, it is often as gratuitous as the air that we breathe.

This brings me to an important form of knowledge which apparently falls into this category, but which is not usually thought of in this connection. When any plan under consideration is essentially *experimental*, the willingness to undertake risks (which is an essential factor in all business decision-making) will be present only through the recognition that there exists some inertia in the attainment of equilibrium or some indefinite privately contrived scarcity element in the value of the product.[1] For if the plan is experimental and the result known, interlopers will be attracted in when it is successful, but avoid it when it is unsuccessful. Hence, if the community demands that the supply of knowledge shall be added to, through experiment, it may be necessary, under a system in which secrecy and monopoly have been abolished, to create institutions which confer property on knowledge by preventing it from being used (or rather acted upon) without payment. And it appears that in such a society, payment for adding to knowledge can only be arranged collectively, through the State. Even in *existing* society, patents and copyrights are almost universally regarded as essential ; and the problem seems likely to become more urgent as secrecy is overcome and competition stimulated.[2]

A good example is that of the introduction of an entirely new type of commodity into a market. It is impossible to know in advance whether it will appeal to consumers or not. A considerable capital expenditure may be required to produce it and much advertising expense may be necessary to inform consumers of its existence and to persuade them to be enterprising in trying it. But once their demand for it has been established, interlopers may be able to add to the supply, not without all the other initial expenses, but without the *risk* which the pioneers undertook. There is little doubt that, even outside the field covered by patent and copyright legislation, the framework of *existing* institutions does provide adequate protection to the creator of innovations in a large number of cases, perhaps in most cases. Things like fashion stealing are said to be common in respect of dress designing, and interlopers frequently do intervene to produce products the existence of the demand for which has been established by means of enterprise and risk-bearing to which they have not contributed. But it may be that in practice such interlopers are only attracted in when the original entrepreneurs have tried to make undue profits out of their innovations or connected activities. It may even be argued that existing institutions give *too much* protection to those who are only incidentally originators, and that apparently parasitic interloping is nothing more than the normal operation of competition in the consumer's interests. Nevertheless, the necessity for some protection must be recognised.

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[1] The recognition is not very specific in practice. But if the inertia or privately contrived scarcity elements were not present in some way, such risks would not be undertaken.

[2] " The sacred right of every man to possess exclusive ownership in his own secret or discovery is a sort of inalienable right which has come down to us from ancient times, and which has more recently been hedged about with legal barriers,"—C. J. Foreman, *Efficiency and Scarcity Profits*, p. 280.

The problem which arises is, therefore, that of distinguishing between those elements of income derived from scarcities which frustrate consumers' sovereignty, and those which are in the nature of payment for the experimental policies which must inevitably accompany all innovating, prospecting, inventing, and cognate activities. What may well be regarded as the most live force in a dynamic industrial and trading regime—the exercise of originality and an important type of enterprise—appears to have been traditionally remunerated as a result of arbitrary conditions arising from the advantages of site and size (natural monopoly) of sets of productive operations, inertia in the attainment of equilibrium, collusion in price and output policy, and finally the exercise of business secrecy. The remuneration of experimental investment has been inextricably bound up with the creation and maintenance of scarcities in a given state of knowledge. That these scarcities have brought a private return much greater than the rate of payment necessary, is a conclusion to which I believe all disinterested students of the existing world must be forced. The imagination, research, enterprise and venturesomeness in planning, and the pioneer and prospecting services which have been at the world's disposal have certainly been too dearly bought.

If *enterprise* could be held to be less essential to-day than it was in earlier times, the task of reform would be relatively easy. But in these days of more static conditions of supply, it seems that the service of originating and prospecting is more than ever able to serve the interests of mankind. And in so far as economic inertia, in which business secrecy plays a part, acts as the medium through which the incentive that brings forth the supply of intelligent initiative is exercised, policies which aim rashly at the promotion of equilibrium under natural scarcities might do much harm. The invention of competitive institutions to serve consumers' sovereignty must build on a recognition of the curious fact that inertias and secrecies enable some return to be reaped by pioneers, prospectors and innovators. That the existing system works depends, apparently, largely upon the fact of its slowness. *Risk-bearers through experiment* do obtain rewards which arise through their being pioneers. For a while, partly owing to inertia, and partly because they *can* conceal initial profitableness, they obtain remuneration sufficient to compensate for failures, as well as to pay for successes.

This conclusion constitutes one of the biggest difficulties which I have tried to surmount in my own efforts at visualising the institutions of a more complete economic freedom. In thinking out methods of eliminating the avoidable uncertainties and consequent instabilities due to business privacy, and in attempting to improvise other devices for the removal of official and monopolistic arbitrariness and hindrances to the full utilisation of productive power, I have felt it essential (*a*) to leave all enterprises submitted to anti-monopoly "control" a measure of autonomy deemed sufficient to permit remuneration for *risk-bearing through experiment*, and (*b*) to invent procedures which will permit the protection of "registered innovations". The latter is intended to cover novelties which cannot be practically brought within the scope of patent and copyright legislation.[1]

The problem of remunerating this type of innovation is, however, one which has hardly been encountered yet, in society as it is. At any rate, if recognised, the problem has always seemed to be one of small urgency. Only when the framework of the property system has been refashioned, with a view to enabling diffused and decentralised entrepreneurship under conditions of much fuller knowledge, is the necessity for some solution likely to become apparent. And experience alone can determine the practical importance of conferring the functions of property upon the results of this kind of risk-bearing.

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[1] Needless to say, a reform along such lines must attempt to eliminate the gross and obvious abuses of patents and copyrights in their present legal form.

The Distribution of Incomes

By E. C. RHODES

IN the white paper " An Analysis of the Sources of War Finance and an Estimate of the National Income and Expenditure in 1938, 1940 and 1941 " (Cmd. 6347, April, 1942) an estimate is given (p. 7) of the amount of personal incomes in different ranges of gross income for U.K. This table is given below, together with a table derived from it.

ORIGINAL TABLE		DERIVED TABLE	
		Aggregates of Incomes possessed by persons whose incomes exceed given limits	
Ranges of Gross Income	Aggregate Gross Income 1940–41 (£mn.)	Limits of Income	Aggregate of Incomes (£mn.)
Under £250 ..	3,344	£25	5,722
£250–£500	1,038	£250	2,378
£500–£1,000 ..	477	£500	1,340
£1,000–£2,000 ..	320	£1,000	863
£2,000–£10,000 ..	367	£2,000	543
£10,000 and over ..	176	£10,000	176
Total ..	5,722		

No lower limit of income is specified in the original table. We have assigned arbitrarily £25 as this figure. It is reasonable to suppose that, in the original computations, from which the table was obtained, account was taken of all incomes, even down to small incomes of the order of 10 shillings a week. We have rounded this off at £25 per annum.

It is well known that the distribution of incomes in the higher income ranges follows closely Pareto's law, and the present distribution is no exception. If the following figures, extracted from the derived table above, are plotted on a double logarithmic scale, the points are seen to lie very closely to a straight line (see Fig. 1).

Limits of Income (x) (£)	Aggregate Income (z) above the limit (x) (£mn.)	
	Original figures	Computed figures
500	1,340	1,366
1,000	863	853
2,000	543	532
10,000	176	178

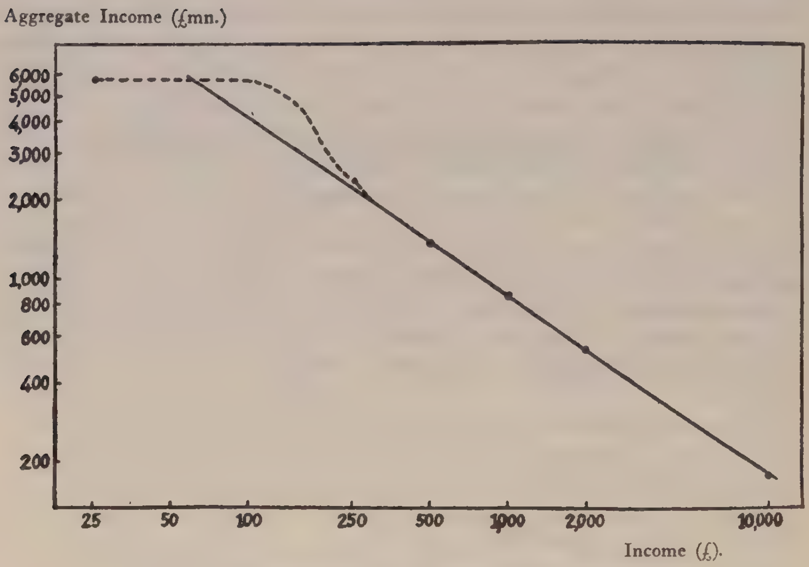

FIG. 1. DISTRIBUTION OF AGGREGATE INCOME.

The equation connecting z and x for these incomes is

$$z = 93{,}340\ x^{-0.68}$$

z being measured in millions of £'s and x in £'s, and the computed figures in the above table are derived from this equation. The dotted line in Fig. 1 corresponds to the distribution in the lower ranges of income which is derived later.

We may recapitulate the various statements of the Pareto law. Let N be the total number of persons, X_0 the lowest income, then $y = pNX_0^p x^{-p-1}$ gives the curve of distribution of incomes, the number of incomes between limits x and $x + dx$ being $y\,dx$. p in this equation is positive and indicates the degree of skewness of the curve, or inequality in the income distribution. The number of incomes above a given value x is $NX_0^p x^{-p}$, and when $x = X_0$ this becomes N, as it should. The aggregate income possessed by all those with incomes above a given value x is $z = \frac{p}{p-1} NX_0^p x^{-p+1}$; this gives the total of all incomes $Z = \frac{p}{p-1} NX_0$, from which we deduce the average income of the whole group as $\frac{pX_0}{p-1}$.

From the statement of the Pareto law in the form

$$z = \frac{p}{p-1} NX_0^p x^{-p+1},$$

we can deduce the value of p and of $\frac{p}{p-1}NX_0^p$ from our data. We find $p = 1.68$ and $\frac{p}{p-1}NX_0^p = 93{,}340$. N is measured in millions.

We do not need to make any assumptions about the total number of persons involved (N), or the lower limit of income (X_0).

Now it is well known that the Pareto law, which describes the distribution of higher incomes, does not satisfactorily account for the distribution of incomes in the lower ranges. Even though we have no exact knowledge of certain data we can show the inadequacy of the Pareto law in the lower ranges of income for our data. For, if the same Pareto law did operate, we should have $X_0 = £78$, assuming that the total number of persons possessing incomes is 25,000,000. Although we have no exact figure of the number of incomes, under present circumstances, this figure of 25,000,000 is probably reasonably close to the facts. The figure, £78, for the lowest income is obviously too high, because we do know that lower incomes than this are actually earned, and, in fact, we assume that the income which should be regarded as the minimum is £25.

However, it is desirable to find a reasonably adequate formula which will describe the distribution of income in the lower ranges of income. This means making the assumption that, in the higher ranges, the distribution is correctly accounted for by the Pareto law, and making an assumption about the division line between higher and lower incomes. Unfortunately, the data at our disposal are very meagre. We have already made one assumption, that the lowest income is £25. The second piece of information is derived from the known fact that the aggregate of all incomes above £250 is £2,378 mn. A glance at Fig. 1 shows that the line corresponding to the Pareto law does not pass through the point corresponding to the facts about the aggregate income above £250. So, any computations which are made with the object of deducing the law of distribution in the lower income ranges must account for the known facts about the aggregate incomes possessed by persons with incomes more than £250. Further, as we have satisfactorily accounted for the figures above £500 by the Pareto law, whatever deductions we make about the lower income ranges, they must fit in with this.

With such a lack of exact data, refined methods are unnecessary. We shall assume that the curve of distribution of incomes in the lower ranges may be obtained from a normal curve by means of the Gibrat transformation. It seems reasonable to suppose that this method will give satisfactory results, because the Gibrat transformation involves the variable starting at a fixed value, and in our case we have localised this start of the curve at £25. It may be useful to recapitulate the main points about this method. The transformation of the normal curve is effected in the following manner. If x is the variable of the new curve starting at x_0 and if $y = Nf(x)$ is the equation of this curve, then we arrange that

$$\int_u^\infty \frac{N}{\sqrt{2\pi}} e^{-\frac{1}{2}u^2} du = \int_x^\infty N f(x)\, dx,$$

N being the total number, and $u = a \log(x - x_0) + b$, where u is the variable of the normal curve. In effect, it means that the normal curve and the new curve correspond by areas, and the transformation from the variable u to the variable x is a logarithmic one. The normal curve is distorted into a skew shape, the degree of skewness being inversely proportional to a. The new curve starts at x_0, has one mode and tails off gradually as x gets bigger and bigger.

Before we can make any calculations for the new curve we must know the total number of persons involved. This means that we must make some assumption about the start of the Pareto curve which describes the distribution for the higher incomes. Let us refer to this Pareto distribution as the " tail " and to the distribution in the lower income ranges as the " head ". If we fix a certain value for X_0 for the tail, we can deduce the number of incomes contributing to this tail from the equation given previously $\frac{p}{p-1} N X_0^p = 93{,}340$, where $p = 1.68$. We will assume that the total number of incomes for both head and tail is 25,000,000. This figure has already been mentioned. We then know the number of incomes in the head. Now, if we set the value of X_0 for the tail too high, we shall find that the curve describing the head contributes significantly to the aggregate income above £500, which we can adequately describe by the tail. We find, in fact, that X_0 should not be greater than £280. Below this value the head merges very conveniently into the tail. Above this value the head interferes with the adequate description of the tail by the Pareto law. We already know that X_0 should be greater than £78. But we can limit this lower value still further.

Let us consider a particular value X_0 for the start of the tail ; then the number of incomes in the tail is

$$\frac{p-1}{p} \frac{93{,}340}{X_0^p}$$

and the aggregate income accounted for by the tail is $93{,}340\, X_0^{-p+1}$. Thus the number of incomes in the head is

$$25 - \frac{p-1}{p} \frac{93{,}340}{X_0^p},$$

measured in millions, and the aggregate income contributed by the head is $5722 - 93{,}340\, X_0^{-p+1}$, measured in millions of £'s.

The average income of the head is thus

$$\left(5{,}722 - 93{,}340\, X_0^{-p+1}\right) \Big/ \left((25 - \frac{p-1}{p} 93{,}340 X_0^{-p}\right).$$

If we consider the changes in this, as X_0 diminishes, we find that this average also diminishes until it attains a minimum value, after which if X_0 still further decreases, the average begins to increase. Now, diminishing X_0 means, at first, that more of the whole distribution is accounted for by the tail and less by the head, and with this diminution the average contribution by the persons in the head is also diminished. This seems reasonable. But if we go too far with the lowering of the value of X_0, we get to a stage when the average of the head begins to increase. This means that, comparatively speaking, the head would have more and more incomes in its higher ranges than in its lower ranges. This is not likely to conform with the facts, so it seems reasonable to suppose that the lowest value of X_0 is that which makes the average of the head a minimum. This occurs when this average is the same as the value of X_0, and the equation for X_0 is given by

$$5722 - 25\ X_0 = \frac{93{,}340}{p}\ X_0^{-p+1}$$

We get from this, X_0 = £157.6.

Thus, we should not assume that X_0 could take a lower value than about £160, nor a higher value than about £280.

We can, however, show that X_0 is not likely to have a value as low as £160. Let us suppose X_0 = £160, then, from the equation $\frac{p}{p-1} N X_0^{p} = 93{,}340$, we deduce the value of N for the tail. This value is 7,495,000, leaving 17,505,000 as the number in the head. Also, of the aggregate income, £5,722 mn., £2,963 mn. is allotted to the tail, leaving £2,759 mn. to be contributed by the head. Further, the tail accounts for £2,188 mn. of the aggregate income of persons with £250 per annum and more, leaving a contribution of £190 mn. to be supplied by the head from persons with incomes above this figure. From these data, we find that the Gibrat transformation is

$$u = 3.04\ \log\ (x - 25) - 14.6936.$$

In Fig. 2, we show a graph of the distribution of the whole 25 millions according to income. The break in the curve at £160, where the tail joins on, gives us a double mode with the second mode more prominent than the first. It is doubtful if the second peak at £160 conforms with the facts. It is probable that the junction of the head and tail should occur at some distance to the right of the mode of the head, that is, that the value of X_0 should be considerably greater than £160.

The other extreme, £280, was also tried, and the results appeared to be more reasonable. These are not given here. As a compromise, we decided to assume X_0 = £250. The results with this value are not greatly different from those when X_0 = £280.

For X_0 = £250, 3,542,000 persons are included in the tail with £2,188 mn. aggregate income, leaving 21,458,000 in the head with £3,534 mn. aggregate income. Again, the head must find £190 mn.

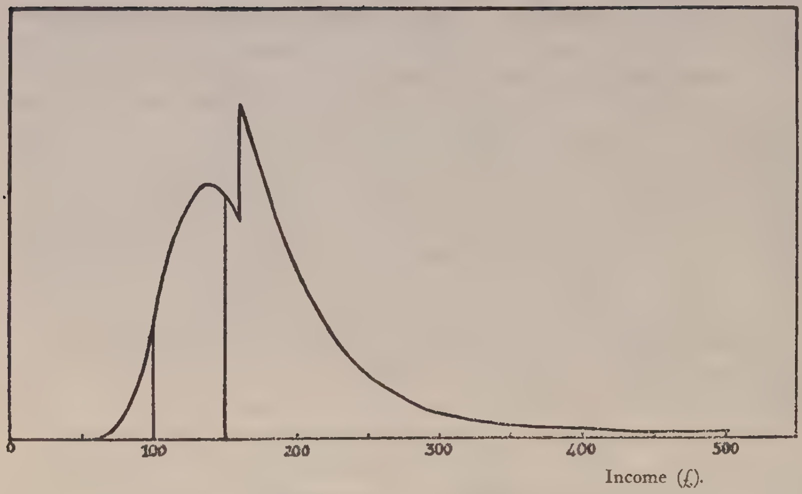

FIG. 2. DISTRIBUTION OF INCOMES ($X_0 =$ £160).

from those with more than £250 per annum. The Gibrat transformation is

$$u = 3.60 \log (x - 25) - 17.6230.$$

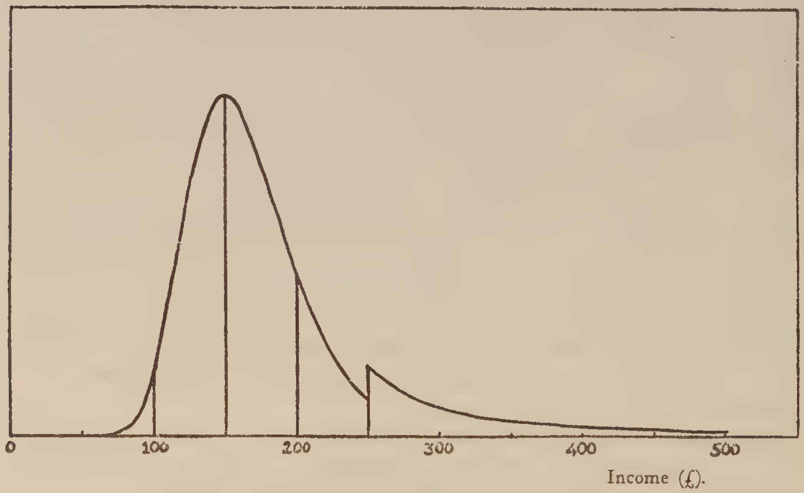

FIG. 3. DISTRIBUTION OF INCOMES ($X_0 =$ £250).

The whole distribution, head and tail, is shown in Fig. 3. We note, in this diagram, the join of the tail to the head at £250, but it does not obtrude in such a sensational manner as for $X_0 = £160$. The distribution of income is given in the table below.

Income Range	Number of Incomes (000)		
	Head	Tail	All
Under £50	0	—	0
£50–£100	386	—	386
£100–£150	8,138	—	8,138
£150–£200	9,260	—	9,260
£200–£250	2,988	—	2,988
£250–£300	578	935	1,513
£300 and over ..	108	2,607	2,715
Total ..	21,458	3,542	25,000

There is one serious defect in this distribution, which was also perceived in that when X_0 was taken as £160 and when X_0 was £280; the lack of frequency under £50. In Fig. 2, the curve effectively starts at about £60, in Fig. 3, the curve starts at about £70. For all these cases we have assumed that the lowest possible income is £25, and we know that incomes are earned as low as this figure and figures up to £50, £60 and £70. The mechanism of the Gibrat transformation, however, does not appear to give us a distribution where the low incomes are revealed. This raises the question whether the Gibrat transformation should be used at all. It has been found to be a powerful method and has satisfactorily described many income distributions, most of which, it must be admitted, are distributions of incomes in the higher ranges. The great advantage of the Gibrat method is that it assumes the distribution to have a finite start, whereas the normal curve theoretically starts with values of the variable negatively very large. This difficulty is sometimes illusory, because a curve often starts effectively at a finite value of the variable, when theoretically it starts at an infinitely negative value. We seem, then, to be reduced to the assumption that the income distribution of the head is normal. There is an alternative which deserves attention.

Let us reconsider the tail of our original distribution. We find that it is well described by the Pareto law. Now, we can, by a variant of the Gibrat transformation, find a curve, not the normal curve, which can be distorted into the Pareto curve.

Let us consider the equation

$$y = e^u \left(1 + \frac{e^u}{p}\right)^{-p-1},$$

where p is positive. This is a curve, similar in shape to the normal curve, with a single mode, ranging from $-\infty$ to $+\infty$. A curve of this type, for $p = 1.68$, is shown in Fig. 4 (curve II) together with a normal curve (curve I), with the same area (unity) and standard

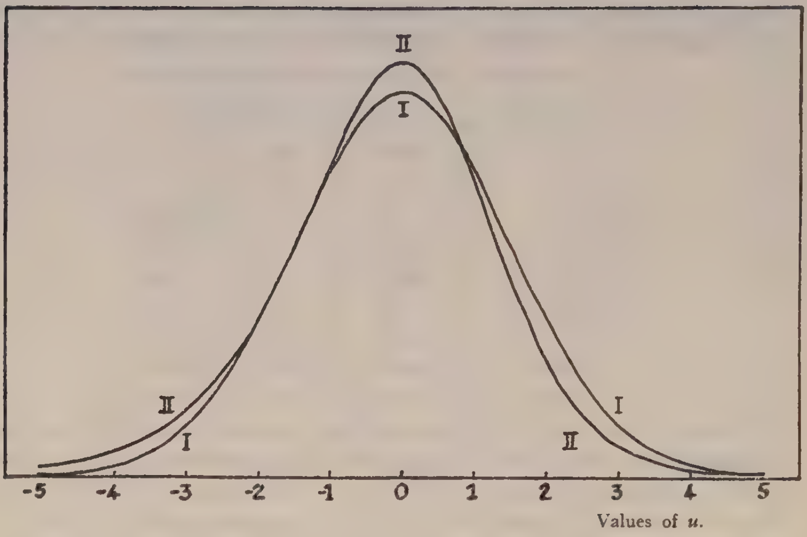

FIG. 4. NORMAL CURVE (*I*) and $y = e^u\left(1 + \frac{e^u}{p}\right)^{-p-1}$

deviation, for comparison. If we arrange, as with Gibrat, to transform this curve into another, $y = P(x)$, where

$$\int_u^\infty e^u\left(1 + \frac{e^u}{p}\right)^{-p-1} du = \int_x^\infty P(x)\, dx,$$

and use the transformation $u = log\left\{p\left(\frac{x-x_0}{x_0}\right)\right\}$,

then $\int_x^\infty P(x)\,dx = \left(\frac{x}{x_0}\right)^{-p}$ In other words, we have derived the Pareto curve, from the "radix"

$$y = e^u\left(1 + \frac{e^u}{p}\right)^{-p-1},$$

with the transformation, $u = log\left\{p\,\frac{(x-x_0)}{x_0}\right\}$.

This is similar to the Gibrat method, but not exactly the same. Skewness already exists in the radix. It varies directly with p, so no term corresponding to "a" in the usual Gibrat transformation is necessary. We may note, in passing, that this radix is symmetrical when $p = 1$, in which case the equation becomes

$y = \frac{1}{4}\sec^2\frac{u}{2}$, and its cumulative frequency curve is the logistic or tan curve.

It seems reasonable, having deduced this radix from the Pareto tail of our original distribution, to consider the possibility that the head may be described by means of the radix itself.

We assume again X_0 = £250. We have the same data as before with which to fit our curve. The radix has a value of p equal to 1.68, its values of u are measured from o (the mode). Its average is at $\bar{u} = -.2508$. We have to change from the scale of u to that of x (in money), and arrange so that the average of our radix coincides with the average of our head. This average, £164.7, can be computed from the aggregate income of the head, £3,534 mn., and the number of persons in the head, 21,458,000.

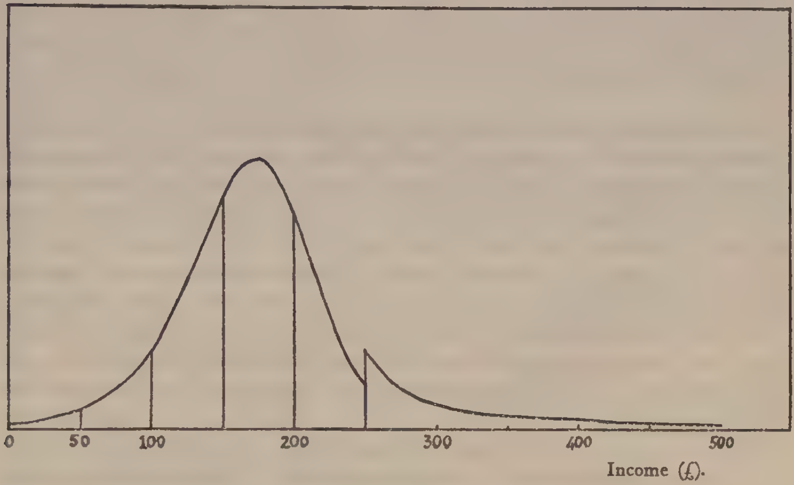

FIG. 5. DISTRIBUTION OF INCOMES (X_0 = £250).

We find $x - 164.7 = 32 (u + .2508)$. This linear transformation gives us an aggregate of £190 mn., contributed by those with incomes greater than £250, as it should. The transformed curve is shown, with the tail, in Fig. 5. A glance at this diagram shows at once that the serious defect of not including incomes under £50 has been overcome. In fact, there is a comparatively small number of persons with incomes below zero, but this number is negligible, less than 100,000. We must remember that we assumed the total number as 25 millions, without any pretence to accuracy.

In the table below the distribution obtained from this curve is given. In this table we will disregard the comparatively few incomes below £25. This means that our total number of incomes is not quite 25,000,000 and the aggregate income is a little more than £5,722 mn. The original data are shown for comparison.

Distribution of Incomes

Income Range	Number of Incomes (000)			Aggregate Income (£mn.)			
	Head	Tail	All	Head	Tail	All	Original Data
£25–£50	245	—	245	10	—	10	3,344
£50–£100	1,588	—	1,588	128	—	128	
£100–£150	5,473	—	5,473	708	—	708	
£150–£200	9,000	—	9,000	1,573	—	1,573	
£200–£250	4,240	—	4,240	928	—	928	
£250–£500	701	2,436	3,137	190	822	1,012	1,038
£500–£1,000	—	760	760	—	513	513	477
£1,000–£2,000 ..	—	237	237	—	321	321	320
£2,000–£10,000 ..	—	101	101	—	354	354	367
£10,000 and over ..	—	7	7	—	178	178	176
Total	21,247	3,541	24,788	3,537	2,188	5,725	5,722

To summarize, the whole body of 24¾ million income possessors is divided into two groups, the head 21¼ millions, and the tail 3½ millions with incomes above £250. Of the 21¼ millions in the head, about 1¾ millions have incomes under £100, about 5½ millions have incomes between £100 and £150, 9 millions have incomes between £150 and £200, and the remainder, about 5 millions, have incomes above £200, the highest income not being greatly in excess of £300.

It is admitted that this is only one way of accounting for the known data, but other reasonable methods would probably involve assumptions similar to those made here, and the final results would be substantially the same.

There is one matter of great interest which emerges from this study. Experience has shown that when we examine statistical data showing variation of some characteristic possessed by individuals of a homogeneous group, the data may often be described in mathematical terms by means of the equation of a frequency curve. For a great many such studies, the normal curve has been found suitable; Pearson's system of curves was derived in order to provide mathematical formulæ for cases where the normal curve is obviously unsuitable. Various other methods have also been devised; mention should be made of the work of Edgeworth and Gibrat. In all cases, the idea is, with homogeneous data, we anticipate that we should be able to find an appropriate mathematical description of a frequency distribution. We may go so far as to suspect that, given a certain frequency distribution and an inability to describe it simply by one mathematical formula, the distribution may not be homogeneous. This suspicion should not be regarded as a deduction, because the failure to find the appropriate mathematical expression may be the fault of the mathematician and not the fault of the data. With income distributions, however, the simple Pareto description of the possession of incomes in the higher ranges, together with the fact that this description does not apply to the distribution of incomes in the lower ranges, together with other information, not of a statistical character, leads one to consider the possibility that different laws are in operation at different income levels. It is true that our data are generally defective. As a rule, earned and unearned incomes are mingled together, sometimes the income is that of one person, sometimes that of two (husband and wife). We would like to have information relating to incomes (earned and unearned separately) where sex and age are differentiated. So, we cannot pretend that our income data relate to a homogeneous group.

We will assume that our whole group of income possessors can be divided into two, the major part with incomes ranging from about £25 to just over £300, the other, the minor part, with incomes ranging from about £250 and including very large incomes. It seems reasonable to suppose that the distribution of income in these two groups is effected by different laws.

It has been long established that the distribution of many physical characteristics in man is normal or reasonably so. For many mental characteristics, also, the distribution is normal. For purposes of argument, these normal distributions of physical and mental characters are often assumed. It is assumed that the majority of people are ordinary, fewer are better or worse than the average. One of the advantages of the transformation methods, used by Edgeworth and Gibrat in the mathematical description of frequency curves, is the reliance on a radix, which is distorted into the given frequency distribution. We can give an interpretation of the mathematical transformation of a variable u into a variable x, especially when the variable u is normally distributed, or nearly so. Let us suppose that the individuals in a group possess a characteristic u in varying degrees, and that the dispersion of this character in the group is normal or nearly normal. We will suppose that this u is some factor of a physical or mental kind or a combination of both, something like strength and intelligence. We will suppose that it is the possession of this factor u which enables the individual to take his share in the economic life of the community, and that the individual's income (x) is connected with the amount of u which he possesses. We might assert that those with more u are enabled to get more x (income). We may say that the amount of income (x) possessed by a person represents the outward manifestation of his possession of an amount u of our supposed characteristic.

The question arises, how does a person translate his u into x? It appears, from what has gone before, that this mechanism depends upon which of two groups he is a member. If he belongs to the majority the mathematical equation, $x - 164.7 = 32\,(u + .2508)$, gives the income ($x$) in terms of the factor (u). This is a simple linear equation. Differences between individuals are indicated by the equation $dx = 32\,du$. Thus if two individuals differ by a small amount of u, their difference of income will be the same at all ranges of income. In effect, the radix giving the distribution of u, which is not very abnormal, is merely enlarged by multiplying the scale by a constant amount to give the actual distribution of income amongst this large group.

On the other hand, if the person belongs to the minority, this same radix is distorted by means of an equation

$$x - X_0 = \frac{X_0}{p} e^u.$$

The income (x) is derived from the character u by a more complex mechanism. Here $dx = \frac{X_0}{p} e^u \, du = (x - X_0) \, du$. Thus the extra income accruing on account of a slightly extra u is proportional to this extra u, but it is also proportional to e^u or $x - x_0$. The higher up the scale the person is, the more a little extra of u is worth in income. We may say that in the larger group the individuals line themselves up according to an arithmetical progression, while in the smaller group they are ranged according to a geometrical progression.

We may contrast these two groups by comparing the same values of u possessed by individuals in the two groups with the corresponding incomes.

Values of *u*	Income (£)		Ratio (Minor/Major)
	Major Group	Minor Group	
—2·0 ..	109	270	2·5
—1·5 ..	125	283	2·4
—1·0 ..	141	305	2·2
—0·5 ..	157	340	2·2
0 ..	173	399	2·3
0·5 ..	189	495	2·6
1·0 ..	205	655	3·2
1·5 ..	221	917	4·1
2·0 ..	237	1,350	5·7

There is a commonplace saying—"There is one law for the rich and another for the poor." Are these laws, to which this quotation refers, the laws of translation of physical and mental capacity into income, which have been deduced above ?

We may well imagine that the income possessors in the smaller group with higher incomes also possess other characterics of skill, ability, and place in society, which are not possessed by those in the larger group with smaller incomes, and it is the possession of these other attributes which enables them to operate under another law of transformation of capacity into income. The question remains, why is one law like that of an arithmetical progression and the other like that of a geometrical progression ? Is the distinction between these two classes, the upper and the lower, merely economic, the operation of two different methods of translating certain physical and mental skills into income ?

Ricardo's Theory of Public Debts[1]

By R. O. Roberts

Ricardo's theory of public debts is to be discovered in his *Principles*, his *Letters*, his (*Encyclopædia Britannica*) article on the *Funding System*, his *Notes on Malthus' Principles*, and in certain incidental remarks in some of his writings on monetary and agrarian matters. It will be convenient to consider this theory under three sub-headings : 1. Public Debt, 2. Sinking Funds, and 3. Capital Levy.

1. Public Debt. In his *Principles*, Ricardo premised the treatment of public debts by a statement that the ordinary and extraordinary expenditures of the State were chiefly payments made to sustain unproductive labourers,[2] and he pointed out that any saving from the expenses of the Government would " be added to the income if not to the capital of the contributors."[3] So convinced was Ricardo of the wastefulness of public expenditure that, in a letter to McCulloch in 1816, he showed great concern lest his writings should be construed as giving " encouragement to ministers to be profuse in the public expenditure."[4] To secure himself against such misconstruction, he re-read his *Principles* with a view to finding out those passages which in McCulloch's estimation tended to encourage Ministers to levy taxation ; and he actually re-wrote one passage in order to make clear his view that taxation should be at a minimum.[5]

Ricardo's theory of public loans then was based on an emphasis of the fact that the primary burden to the community was derived from the wasteful nature of public expenditure itself rather than from the methods adopted to finance such expenditure.[6] Regarding the question of financing public expenditure his view was that the requisite funds would ultimately have to be drawn from the liquid resources of the community and that " in point of economy " it would make no great difference whether such funds were raised by taxes or by loans. Indeed, he argued that " twenty millions in one payment, one million per annum for ever, or £1,200,000 for forty-five years, are precisely of the same value."[1]

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[1] This paper—substantially prepared during the tenure of a Gladstone Memorial Studentship at the University College of North Wales—owes much to the guidance and criticism of Dr. Duncan Black.

[2] *Principles of Political Economy and Taxation*, p. 278. The references are to Gonner's edition.

[3] *Ibid.*, p. 228.

[4] *Letters of David Ricardo to John McCulloch*, ed. J. H. Hollander, p. 11.

[5] Cf. *Ibid.*, p. 13.

[6] *Principles*, p. 228. Cf. De Viti de Marco, *First Principles of Public Finance*, p. 397.

Edgeworth has pointed out that Ricardo, in thus identifying the tax, loan, and loan-cum-sinking-fund alternatives, did not sufficiently distinguish between equivalence in exchange value—" in the normal exchange of future against present goods "—and equivalence in real cost. Though the alternatives mentioned by Ricardo might represent an equal market value there were, to use Edgeworth's words, " no *a priori* quantitative relations . . . . as sometimes virtually presupposed "[2] between the magnitudes of real cost involved in each case. But since Ricardo was well aware of the fact that taxpayers did not estimate the real cost involved under each of the three alternatives as being the same,[3] and since he himself, as we shall see, was by no means indifferent as between the alternatives on the score of burdensomeness, we suggest that Ricardo may well have chosen the concept of an objective market equality between borrowing and taxing merely as an accounting relationship which provided common ground for debate between the proponents of the different alternatives.

Ricardo marshalled various arguments in support of his own view that taxes were the best agents of extraordinary government finance:

(i) He considered that when taxes are paid " an effort is made to save to the amount of the whole expenditure of the war, leaving the national capital undiminished ", whereas in the case of finance by war loan " an effort is only made to save to the amount of the interest of such expenditure, and therefore the national capital is diminished in amount."[4] The existence of such a tendency to save only " to order " is indubitable; but Ricardo treated it in a manner which exaggerated its importance. He considered the propensity to save only from the point of view of the contribution that had to be made to the Exchequer and did not allow for other motives—primarily, motives only remotely connected with public finance—which affected that propensity.

(ii) He held that " the greatest advantage that would attend war taxes would be the little permanent derangement that they would cause to the industry of the country. The prices of our commodities would not be disturbed by taxation; or, if they were, it would only be during a period when everything is disturbed by other causes during war. At the commencement of peace, everything would be at its natural level again."[5] The all-tax plan would thus have the effect of confining price-changes, and the resultant artificial and uneconomic allocation of the factors of production, to the war period itself.

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[1] art. *Funding System*, p. 539. The references are to the pagination in Ricardo's *Works*, ed. McCulloch.

[2] F. Y. Edgeworth, *The Cost of the War*, 1915, p. 37 and p. 38.

[3] art., *Funding System*, p. 539.

[4] art., *Funding System*, p. 540. This argument was advanced in its fullest form in the *Principles*, p. 231.

[5] art., *Funding System*, p. 541, cf. *Principles*, p. 232.

(iii) He mentioned that the all-tax plan would obviate the need of meeting charges for debt management.[1]

(iv) He also advanced the "moral check" argument (later popularised by Gladstone), averring that: "When the pressure of war is felt at once, without mitigation, we shall be less disposed wantonly to engage in an expensive contest."[2] And finally,

(v) "perhaps what is of more importance than all these together, we might get rid of those great sources of the demoralization of the people, the Customs and Excise."[3]

Let us now consider the manner in which he met the two main objections against such an all-tax system. In reply to the objection, which was later to be renewed by De Viti, "that the larger tax . . . . could not be conveniently paid by manufacturers and landholders, for they would not have large sums of money at their command"[4], Ricardo argued that there still existed for such people the possibility of "selling part of their property for money or of borrowing it at interest."[5]

He did not indicate the extent to which he thought private loan transactions would arise out of an all-tax system, but it is clear from his remarks regarding the relatively greater incentive to save under that system that he considered the aggregate borrowings of the community on account of war finance would be less under taxation than under borrowing. Such private loans would, as against public loans, "be beyond all comparison less injurious." That the rate of interest would be the same under both the private and the public systems of borrowing seems to be implicit in Ricardo's references to £100 interest on £2,000 under both alternatives,[6] as also in his statement that: "In the case of a loan A advances *the* money, and B pays *the* interest, and everything else remains as before. In the case of war-taxes A would still advance *the* money and B pay *the* interest, only with this difference, he would pay *it* directly to A; now he pays *it* to government and government pays *it* to A."[7] Such an implication, however, was invalidated on the one hand by the fact that the aggregate amount borrowed would be less in the case of private borrowing because of increased savings under the all-tax plan, and on the other hand by the fact (realised by McCulloch and more recently pointed out by De Viti) that the credit of a borrowing government is higher than that of an individual borrower. The lesser borrowing under private loans would tend to give a lower rate of interest than under State borrowing; while the smaller degree of security which the private borrower could afford to the lender would tend in the opposite direction of raising the rate of interest (including an allowance for

[1] art., *Funding System*, p. 541.

[2] *Ibid.*, p. 539.

[3] *Ibid.*, p. 541.

[4] *Ibid.*, p. 540.

[5] *Ibid.*, p. 540.

[6] *Principles*, p. 229.

[7] art., *Funding System*, p. 540 (writer's italics).

risk) above the level which would be paid by the State as a borrower. The effect under a system of private borrowing therefore might be that either a lower or a higher rate of interest would be paid according as one or the other of these factors was predominant.

As regards the second objection—namely that the high war taxes would fall on property to a much greater extent than the smaller taxes then in existence, so that wage-earners and those in professions would be benefited at the expense of landlords and capitalists, Ricardo contended that the situation would be rectified by the fact that an additional number would be enticed into the professional and wage-earning ranks and that competition would reduce their remuneration.[1] He did not, however, seem to allow for the fact that such an adjustment leading to a new equilibrium could only take place after a considerable time lag, and in the teeth of various institutional factors making for conservatism.

According to Ricardo payments of interest on the Public Debt involved a transfer of wealth from one pocket to another within the community. Those who received the transferred wealth might either " employ it productively " or " squander it unproductively "; whether in actual fact they would employ it more productively or less productively than those from whom the wealth was transferred Ricardo did not know; nor did he think that a government could arrive at a true decision on such a question.[2] It appeared to him unprofitable to speculate at length as to which of these possibilities was the more likely to be true; accordingly, though he showed his awareness of the possibility of deviations one way or the other from his hypothesis and though he would no doubt have been willing to learn from experience, he treated the problem of public debts on the assumption that the different sets of individuals concerned would use the interest payments in an equally profitable manner.[3]

The question of whether the payment of Debt-interest involved a net burden to the community would seem for him to depend on whether the interest transferred would be employed more productively by the bondholder who received it or by the taxpayer who paid it. In view of his assumption just mentioned, that these individuals would use the interest money in an equally productive fashion, he could conclude that " it is not . . . . by the payment of interest on the national debt that a country is distressed, nor is it by the exoneration from payment that it can be relieved."[4]

Let us consider now the weaknesses of a system of public borrowing, as they appeared to Ricardo, and see by what factors he was impelled away from this choice towards a system of heavier taxation. He held that the effect on prices was one of the specific weaknesses of borrowing. " A country which has accumulated a large debt," he wrote in the *Principles*, "is placed in a most artificial situation; and although the amount of taxes, and the increased price of labour, may not, and I believe does not, place it under any other disadvantage with respect to foreign countries, except the unavoidable one of paying those taxes; yet it becomes the interest of every contributor to withdraw his shoulder from the burden, and to shift this payment from himself to another."[1] As early as 1815 Ricardo thus expressed himself in a letter to Hutches Trower: "I am every day becoming a greater enemy to the funding system. Besides its other evils it destroys so cruelly the prices of commodities as to give us a serious disadvantage in all foreign markets."[2] The National Debt, he stated in Parliament in June, 1819, "destroyed the equilibrium of prices";[3] and in December of the same year he stated that the Debt, like the corn laws, "raised the price of food and consequently the price of labour."[4] Like Adam Smith, he believed that the pressure of the Debt burden would drive capital and capitalists out of the country;[5] in March, 1823, he mentioned in Parliament the "artificial conditions of trade"[6] which he considered to be largely the result of the high level of taxation necessitated by Debt charges.

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[1] art., *Funding System*, pp. 540–541.
[2] *Principles*, pp. 229–230.
[3] *Ibid.*, p. 230.
[4] *Ibid.*, p. 230.

Such views regarding the burdens imposed by the Public Debt—"the overwhelming incumbrance which palsies all our efforts"[7]—led Ricardo to favour a strict adherence to the all-tax principle in future emergencies, and also to advocate the maximum of effort to redeem the Debt.[8]

Regarding the content which Ricardo gave to the term, "redemption of debt", we note that he stated in Parliament in December, 1819, that: "He did not mean that it (*i.e.* the Debt) should be redeemed at par; the public creditor possessed no such claim—were he paid the market price, the public faith would be fulfilled."[9] Yet he averred in May, 1820, that "when he spoke of getting rid of the national debt, he did not mean by wiping it away with the sponge but by honestly discharging it."[10] And he could not agree to McCulloch's "violent remedy . . . . of reducing the interest on the national debt. . . ."[11]

2. SINKING FUNDS. It was Ricardo's belief that so far as pure theory was concerned a sinking fund, fairly applied, could provide a satisfactory method of debt-redemption. He wrote: "It will not,

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[1] *Principles*, p. 232.

[2] *Letters of David Ricardo to Hutches Trower and Others, 1811–1823*, ed. Bonar and Hollander (1899), p. 13.

[3] Quoted Cannan, "Ricardo in Parliament." *Economic Journal*, Vol.IV, p. 421.

[4] *Ibid.*

[5] *Principles*, p. 232. *Notes on Malthus' Principles*, ed. Hollander and Gregory, p. 246. Quoted Cannan, art. cit., p. 421. *Letters to Trower*, p. 51. Cf. *Wealth of Nations*, ed. Cannan, p. 41.

[6] Quoted Cannan, art. cit., p. 423.

[7] *Letters to McCulloch*, p. 50.

[8] Cf. *Principles*, pp. 232, 233. *Letters to Trower*, p. 102.

[9] Quoted, Cannan, art. cit., p. 421. Cf. *Letters to Trower*, p. 97. *Letters to McCulloch*, p. 50.

[10] Quoted, Cannan, art. cit., p. 422. Cf. *Letters to Trower*, p. 11.

[11] *Letters to McCulloch*, p. 1. Cf. *Ibid.*, pp. 4–6.

we think, admit of a doubt that if Mr. Pitt's sinking fund, as established in 1792, had been always fairly acted upon . . . . we should have made rapid progress in the extinction of debt."[1]

As for the objections made to the sinking fund, Ricardo reduced them to two evils which would supposedly arise during the later years of its operation: "first that capital will be returned too quickly into the hands of the stockholder without his having any means of deriving a revenue from it, and, secondly, that the remission of taxes to the amount probably of thirty millions, will have a great effect on the prices of particular commodities, and will be very pernicious to the interests of those who may deal in or manufacture such commodities."[2]

He answered the first objection by demonstrating that the Sinking Fund Commissioners possessed no capital, since they merely received sums of money collected from the taxpayers and dispersed such sums in payment for the stock which they redeemed.[3] He believed that "all the money received by the stockholder in return for his stock must be employed as capital for, if it were not so employed, he would be deprived of his revenue on which he habitually depended."[4] And his belief in the advantages to be derived from capital accumulation led him to state that, "if any portion of the taxes paid expressly for the sinking fund be paid from revenue, and which, if not so paid, would have been expended as revenue, then there is a manifest advantage in the sinking fund, as it tends to increase the annual produce of our land and labour; and as we cannot but think that this would be its operation, we are clearly of opinion that a sinking fund honestly applied, is favourable to the accumulation of wealth."[5] Indeed, Ricardo wrote of the sinking fund in 1816 as "the general saving bank of the Nation, (which) . . . . should be encouraged on the same principles as encouragement is given to those institutions."[6]

He replied also to the objection that a sudden remission of taxes resulting from the repayment of public debt by means of a sinking fund would reduce the prices of commodities to the consequent ruin of dealers, and showed that just as, at the time of imposition of a tax, the stock in hand of a dealer was ascertained and made liable to such tax, so the stock in hand could be ascertained in the event of a withdrawal of the tax, and the total tax thereon refunded to the holder.[7]

Ricardo vigorously defended the sinking fund on theoretical grounds in two letters written to Francis Place in November, 1819.[8] Here he showed that, whereas there could be no efficient sinking fund apart from that derived from an excess of public income over expenditure and whereas " there is no real fund nor can there be while we are in debt,"[1] the sinking fund was still a real fund in the sense that, by the whole amount of the taxes raised on its account, it prevented new debt from coming into existence. In regard to the maintenance of a borrowed sinking fund during a period of war, Ricardo noted Robert Hamilton's conclusion that such a course involved definite loss to the Government. Ricardo himself, however, followed Grenfell in advocating the maintenance during war of a sinking fund subject to the operation of the "Fox clause" of the sinking fund provisions of 1786, whereby the Sinking Fund Commissioners could, if it were deemed expedient, apply their disposable funds to the purchase of Government securities.[2] He did so because of his belief in the value of the sinking fund in its bearing on taxable capacity—his view being that, by calling a loan twenty millions and allowing the Commissioners to subscribe ten millions, the public would be induced to bear higher taxes than if the loan had simply been called one of ten millions.[3]

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[1] art. *Funding System*, p. 531. Cf. *Ibid.*, p. 532.
[2] *Ibid.*, p. 533.
[3] *Ibid.*, p. 538.
[4] *Ibid.*, p. 537. Cf. Cannan, *Colwyn Report—Minutes of Evidence*, p. 60.
[5] *Ibid.*, pp. 537–8.
[6] *Letters to Trower*, p. 15.
[7] art. *Funding System*, p. 536.
[8] Letters XIX and XXX in the volume *Letters to Trower*.

Apart from such deductive argumentation Ricardo considered whether the sinking fund would in practice be allowed to remain inviolate " and therefore whether the sinking fund is not an instrument of mischief and delusion and really tending rather to increase our debt and burdens than to diminish them."[4] Reflection on the fate which had befallen Pitt's sinking fund led him to conclude that " no securities can be given by ministers that the sinking fund shall be faithfully devoted to the payment of debt, and without such securities we should be much better without such a fund."[5] It seemed to Ricardo that the Government considered the Sinking Fund Commissioners " as their trustees accumulating money for their benefit."[6] He believed that by encouraging expenditure the sinking fund " instead of diminishing the debt greatly increased it."[7] Ministers actually came to regard the fund as a war fund which could be appropriated to provide interest on new loans ; new debts could, therefore, be raised without any provision out of taxes for their interest —politicians were thus fully aware of the potentialities of the sinking fund as a weapon of diplomacy. Apparently, however, it was a weapon of which Ricardo disapproved more as time went by.[8]

The apparent dichotomy in Ricardo's statements with regard to sinking funds is only resolved if we isolate his strictly theoretical conclusions from his conclusions arising out of an objective study of

[1] *Letters to Trower*, p. 87.
[2] art., *Funding System*, pp. 529–530.
[3] *Ibid.*, p. 530.
[4] *Ibid.*, p. 530.
[5] *Ibid.*, p. 545.
[6] *Ibid.*, p. 544.
[7] *Ibid.*, p. 545.
[8] Cf. Ricardo's *Economic Essays*, ed. Gonner, p. 252, and art., *Funding System*, p. 546.

sinking fund practice at the time. Thus we find that though he was to the very last favourable on theoretical grounds to the maintenance of a sinking fund—as late as 1823 he wrote that: "A tolerably good case may be made out in favour of the sinking fund. . . ."[1]—his regular opposition to the fund was a feature of his parliamentary utterances between 1819 and 1823.[2] In view of the alienation of sinking funds it was better "to submit to the burden of your debt without aggravating it by new imposts which will certainly be misapplied"[3] and, by refusing taxes for such funds, to compel "the observance of strict economy in the administration of government."[4] And though he concluded that the maintenance of the sinking fund was part of a solemn contract between the nation and the stockholders,[5] Ricardo realised that whereas it might be said that it would be a breach of faith to the stockholder to take away the sinking fund it was "equally a breach of faith if the government itself sells to the commissioners the greatest part of the stock which they buy".[6] Even though such a course violated the contract with the public creditor, a direct appropriation of the fund, such as he had advocated in 1814,[7] would seem to have appeared to Ricardo preferable to the more insidious encroachments which were common in his time.

3. CAPITAL LEVY. The plan of debt-redemption which Ricardo particularly favoured was that of a high "tax on property"—or, in modern phraseology, a capital levy. Believing that they were but "imaginary riches from the possession of which we only derive a revenue which we are immediately obliged to pay to the tax gatherer,"[8] he advocated the reduction of taxation "at one blow by paying off the national debt immediately by means of an assessment on all the property in the kingdom, including the funds themselves."[9]

The objections to such a levy appeared to Ricardo to be "the same as those which we have already attempted to answer in speaking of war-taxes."[10] The stockholders, being paid off, would have a large volume of liquid funds seeking investment; whereas landowners and industrialists would be in desperate need of such funds for meeting their respective shares of the levy. "These two parties would not fail to make an arrangement with each other, by which one party would employ their money, and the others raise it. They might do this by loan, or by sale and purchase, as they might think it most conducive to their respective interests. . . ."[11]

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[1] *Letters to Trower*, p. 201.

[2] Cannan, art. cit., p. 419.

[3] *Letters to Trower*, p. 83.

[4] Commons Speech of April 5, 1821, quoted Cannan, art. cit., p. 420.

[5] Cf. *Letters to Malthus* (ed. Bonar, 1887), p. 62; *Economic Essays*, p. 252, and *Letters to McCulloch*, p. 7. For the opposite view see E. L. Hargreaves' *The National Debt*, p. 25.

[6] art., *Funding System*, p. 544.

[7] Cannan, art. cit., p. 418.

[8] *Letters to Trower*, p. 111. Cf. *Principles*, pp. 232–3.

[9] Cannan, art. cit., p. 421.

[10] art., *Funding System*, p. 546.

[11] *Ibid.*, p. 546.

The objection of " the large quantity of land which a proprietor would be obliged to part with in order to redeem himself from the payment of his annual taxes," Ricardo met by the reflection that, since payment of the levy would affect all the landowners alike it would leave them " precisely in the same relative situation to each other as that in which they now stood."[1] A more plausible objection in Ricardo's view was that the levy " would relieve from taxation all those who are in professions, and whose incomes are derived from wages or salaries."[2] Here he referred back to the argument of his *Encyclopædia* article, where this same objection was dealt with in regard to a high war tax, and where he showed that, by an inexorable tendency of the economy to create for itself a new equilibrium, an additional number of persons would be enticed into the professions " and the competition would reduce the pay."[3] But his statement to McCulloch regarding this argument—that " it requires your talents to give it weight "[4]—indicates that Ricardo was not quite satisfied with his own treatment of this objection.

Ricardo realised that the execution of his levy proposals " might be attended with difficulty " ; but he believed that " the importance of the object was worthy of an effort to overcome every possible difficulty."[5] And he was no unpractical theorist when he wrote that : " Some precautions would be necessary to prevent people from concealing their property, or sending it abroad, to withdraw it from a fair share of the burden."[6] He realised also that there was " some difficulty with respect to the time required for such an immense operation and the means of effecting it."[7] The time required for carrying through a capital levy scheme he variously estimated as " two or three years ",[8] " four or five years ",[9] and—in his last statement on this matter—more optimistically as " within twelve months of the inception of the levy arrangements."[10] The transactions involved in a capital levy would, he believed, be facilitated by the issue of " checks " by the Government ; but it is not too clear how Ricardo intended these to work.[11] The aim of course was to provide the means of carrying through the levy scheme with the minimum demand on the country's medium of circulation. This becomes clear in Ricardo's parallel version of the proposal, namely that of " issuing exchequer bills to the holders of 50 millions of stock, which bills would be receivable in payment of the contributions of capitalists, and if not employed for that purpose, then payable in money on a day to be fixed."[1]

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[1] *Letters to McCulloch*, p. 81.

[2] *Ibid.*, p. 81. W. R. Scott developed this line of argument. Cf. " Some Aspects of the Proposed Capital Levy," *Economic Journal*, Sept., 1918, p. 248.

[3] art. *Funding System*, p. 540.

[4] *Letters to McCulloch*, p. 81. McCulloch attempted a restatement of Ricardo's argument in the *Edinburgh Review* for October, 1827.

[5] Cannan, art. cit., p. 422.

[6] *Letters to McCulloch*, p. 82.

[7] *Ibid.*, p. 81.

[8] art., *Funding System*, p. 546.

[9] Cannan, art. cit., p. 422.

[10] *Ibid.*, p. 422.

[11] Cf. *Ibid.*, p. 422.

Ricardo was well aware of the fact that his capital levy scheme would not be put into operation. " Such a scheme," he stated, " has been often recommended, but we have, I fear, neither wisdom enough, nor virtue enough to adopt it."[2] Writing to McCulloch in February, 1820, he felt certain that the imposition of a capital levy " will not be the mode in which we shall get rid of the debt."[3] And in a letter of the same year to Sir John Sinclair he summarised the position in these words : " I fear that no plan for paying off the debt will receive any countenance from Parliament. Men do not like to make an immense sacrifice for the future good ; and they please themselves with imaginary riches, from which they really derive no advantage."[4]

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[1] *Letters to McCulloch*, pp. 81–2.

[2] *Principles*, p. 234. The word " often " in this excerpt indicates Ricardo's awareness of earlier formulations of the " levy " proposal.

[3] *Letters to McCulloch*, p. 50. Cf. Cannan, art. cit., p. 422 ; *Letters to Trower*, p. 103.

[4] *Letters to Trower*, p. 111.

Scientism and the Study of Society

By F. A. v. Hayek

> *Systems which have universally owed their origin to the lucubrations of those who were acquainted with one art, but ignorant of the other; who therefore explained to themselves the phenomena, in that which was strange to them, by those in that which was familiar; and with whom, upon that account, the analogy, which in other writers gives occasion to a few ingenious similitudes, became the great hinge on which every thing turned.*
>
> Adam Smith (*Essay on the History of Astronomy*).

I

In the course of its slow development in the eighteenth and early nineteenth centuries the study of economic and social phenomena was guided in the choice of its methods in the main by the nature of the problems it had to face.[1] It gradually developed a technique appropriate to these problems without much reflection on the character of the methods or on their relation to that of other disciplines of knowledge. Students of political economy could describe it alternatively as a branch of science or of moral or social philosophy without the least qualms whether their subject was scientific or philosophical. The term " science " had not yet assumed the special narrow meaning it has to-day,[2] nor was there any distinction made which singled out the physical or natural sciences and attributed to them a special dignity. Those who devoted themselves to those fields indeed readily chose the designation of philosophy when they were concerned with the more general aspects of their problems.[3]

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[1] This is, however, not universally true. The attempts to treat social phenomena "scientistically," which became so influential in the 19th century, were not completely absent in the 18th. There is at least a strong element of it in the work of Vico, of Montesquieu, and of the Physiocrats. But the great achievements of the century in the theory of the social sciences, the works of Cantillon and Hume, of Turgot and Adam Smith, were on the whole free from it.

[2] The earliest example of the modern narrow use of the term " science " given in Murray's *New English Dictionary* dates from as late as 1867. But T. Merz (*History of European Thought in the Nineteenth Century*, vol. I, 1896, p. 89) is probably right when he suggests that " science " has acquired its present definite meaning about the time of the formation of the British Association for the Advancement of Science (1831).

[3] E.g. J. Dalton's *New System of Chemical Philosophy*, 1808: Lamarck's *Philosophie Zoologique*, 1809, or Fourcroy's *Philosophie chimique*, 1806.

During the first half of the nineteenth century a new attitude made its appearance. The term science came more and more to be confined to the physical and biological disciplines which at the same time began to claim for themselves a special rigourousness and certainty which distinguished them from all others. Their success was such that they soon began to exercise an extraordinary fascination on those working in other fields, and who soon began to imitate their teaching and vocabulary. Thus the tyranny commenced which the methods and technique of the Sciences[1] in the narrow sense of the term have ever since exercised over the other subjects. These became increasingly concerned to vindicate their equal status by showing that their methods were the same as those of their brilliantly successful sisters rather than by adapting their methods more and more to their own particular problems. And although in the hundred and twenty years or so, during which this ambition to imitate Science in its methods rather than its spirit has now dominated social studies, it has contributed scarcely anything to our understanding of social phenomena, not only does it continue to confuse and discredit the work of the social disciplines, but demands for further attempts in this direction are still presented to us as the latest revolutionary innovations which, if adopted, will secure rapid undreamed of progress.

Let it be said at once, however, that those who were loudest in these demands were rarely themselves men who had noticeably enriched our knowledge of the Sciences. From Francis Bacon, the Lord Chancellor, who will for ever remain the prototype of this attitude, to Auguste Comte and the "physicalists" of our own day, the claims for the exclusive virtues of the methods employed by the natural sciences were mostly advanced by men whose right to speak on behalf of the scientists were not above suspicion and who indeed in many cases had shown in the Sciences themselves as much bigoted prejudice as in their attitude to other subjects. Just as Francis Bacon opposed Copernican Astronomy[2], and as Comte taught that any too minute investigation of the phenomena by such instruments as the microscope was harmful and should be suppressed by the spiritual power of the positive society because it tended to upset the laws of positive science, so this dogmatic attitude has so often misled men of this type in their own field that there should have been little reason to attach too much importance to their views about problems still more distant from the fields from which they derived their inspiration.

The history of this influence, the channels through which it operated, and the direction in which it affected social developments, will occupy us throughout the series of historical studies to which the present essay is designed to serve as an introduction.[3] Before we trace the historical course of this influence and its effects, we shall here attempt to describe its general characteristics and the nature of the problems to which the unwarranted and unfortunate extensions of the habits of thought of the physical and biological sciences have given rise. There are certain typical elements of this attitude which we shall meet again and again and whose *prima facie* plausibility makes it necessary to examine them with some care. While in the particular historical instances it is not always possible to show how these characteristic views are connected with or derived from the habits of thought of the scientists, this is easier in a systematic survey.

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[1] We shall use the term Science in capital letters when we wish to emphasise that we use it in the modern narrow meaning.

[2] See M. R. Cohen, "The Myth about Bacon and the Inductive Method," *Scientific Monthly*, vol. XXIII, 1926, p. 505.

[3] The first of this series, entitled "The Counter-Revolution of Science," appeared in ECONOMICA, February to August, 1941.

It need scarcely be emphasised that nothing we shall have to say is aimed against the methods of Science in their proper sphere or is intended to throw the slightest doubt on their value. But to preclude any misunderstanding on this point we shall, wherever we are concerned, not with the general spirit of disinterested inquiry but with that slavish imitation of the method and language of Science, speak of "scientism" or the "scientistic" prejudice. Although these terms are not completely unknown in English,[1] they are actually borrowed from the French, where in recent years they have come to be generally used in very much the same sense in which they will be used here.[2] It should be noted that, in the sense in which we shall use these terms, they describe, of course, an attitude which is decidedly unscientific in the true sense of the word, since it involves a mechanical and uncritical application of habits of thought to fields different from those in which they have been formed. The scientistic as distinguished from the scientific view is not an unprejudiced but a very prejudiced approach which, before it has considered its subject, claims to know what is the most appropriate way of investigating it.[3]

It would be convenient if a similar term were available to describe the characteristic mental attitude of the engineer which, although in many respects closely related to scientism, is yet distinct from it but which we intend to consider here in connection with the latter. No single word of equal expressiveness suggests itself, however, and we shall have to be content to describe this second element so characteristic of 19th and 20th century thought as the "engineering type of mind".

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[1] Murray's *New English Dictionary* knows both "scientism" and "scientistic", the former as the "habit and mode of expression of a man of science," the latter as "characteristic of, or having the attributes of, a scientist (used depreciatively)." The terms "naturalistic" and "mechanistic", which have often been used in a similar sense, are less appropriate because they tend to suggest a wrong kind of contrast.

[2] See e.g. J. Fiolle, *Scientisme et Science*, Paris, 1936, and A. Lalande, *Vocabulaire technique et critique de la philosophie*, 4th ed., vol. II, p. 740.

[3] Perhaps the following passage by a distinguished physicist may help to show how much the scientists themselves suffer from the same attitude which has given their influence on other disciplines such a baneful character: "It is difficult to conceive of anything more scientifically bigoted than to postulate that all possible experience conforms to the same type as that with which we are already familiar, and therefore to demand that explanation use only elements familiar in everyday experience. Such an attitude bespeaks an unimaginativeness, a mental obtuseness and obstinacy, which might be expected to have exhausted their pragmatic justification at a lower plane of mental activity." (P. W. Bridgman, *The Logic of Modern Physics*, 1928, p. 46.)

II

Before we can understand the reasons for the trespasses of scientism we must try to understand the struggle which Science itself had to fight against concepts and ideas which were as injurious to its progress as the scientistic prejudice now threatens to become to the progress of the social studies. Although we live now in an atmosphere where the concepts and habits of thoughts of every-day life are to a high degree influenced by the ways of thinking of Science, we must not forget that the Sciences had in their beginning to fight their way in a world where most concepts had been formed from our relations to other men and in interpreting their actions. It is only natural that the momentum gained in that struggle should carry Science beyond the mark and create a situation where the danger is now the opposite one of the predominance of scientism impeding the progress of the understanding of society.[1] But even if the pendulum has now definitely swung in the opposite direction, only confusion could result if we failed to recognise the factors which have created this attitude and which justify it in its proper sphere.

There were three main obstacles to the advance of modern Science against which it has struggled ever since its birth in the Renaissance period; and much of the history of its progress could be written in terms of its gradual overcoming of these difficulties. The first, although not the most important, was that for various reasons scholars had grown used to devoting most of their effort to analysing other people's opinions: this was so not only because in the then most developed disciplines, like theology and law, this was the actual object, but even more because, during the decline of Science in the Middle Ages, there seemed to be no better way of arriving at the truth about nature than the study of the work of the great men of the past. More important was the second fact, the belief that the "ideas" of the things possessed some transcendental reality, and that by analysing ideas we could learn something or everything about the attributes of the real things. The third and perhaps most important fact was that man had begun everywhere to interpret the events in the external world after his own image, as animated by a mind like his own, and that the natural sciences therefore met everywhere explanations by analogy with the working of the human mind, with "anthropomorphic" or "animistic" theories which searched for a purposive design and were satisfied if they had found in it the proof of the operation of a designing mind.

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[1] On the significance of this "law of inertia" in the scientific sphere and its effects on the social disciplines see H. Münsterberg, *Grundzüge der Psychologie*, 1909, vol. I, p. 137; E. Bernheim, *Lehrbuch der historischen Methode und Geschichts-philosophie*, 5th ed., 1908, p. 144, and L. v. Mises, *Nationalökonomie*, 1940, p. 24. The phenomenon that we tend to overstrain a new principle of explanation is, perhaps, more familiar with respect to particular scientific doctrines than with respect to Science as such. Gravitation and evolution, relativity and psycho-analysis all have for certain periods been strained far beyond their capacity. That for Science as a whole the phenomenon has lasted even longer and had still more far-reaching effects is not surprising in the light of this experience.

Against all this the persistent effort of modern Science has been to get down to " objective facts ", to cease studying what men thought about nature or to regard the given concepts as true images of the real world, and, above all, to discard all theories which pretended to explain phenomena by imputing to them a directing mind like our own. Instead, its main task became to revise and reconstruct the concepts formed from ordinary experience on the basis of a systematic testing of the phenomena, so as to be better able to recognise the particular as an instance of a general rule. In the course of this process not only the provisional classification which the commonly used concepts provided, but also the first distinctions between the different perceptions which our senses convey to us, had to give way to a completely new and different way in which we learned to order or classify the events of the external world.

The tendency to abandon all anthropomorphic elements in the discussion of the external world has in its most extreme development even led to the belief that the demand for " explanation " itself is based on an anthropomorphic interpretation of events and that all Science ought to aim at is a complete description of nature.[1] There is, as we shall see, that element of truth in the first part of this contention that we can understand and explain human action in a way we cannot with physical phenomena, and that consequently the term " explain " tends to remain charged with a meaning not applicable to physical phenomena.[2] The actions of other men were probably the first experiences which made man ask the question " why ? ", and it took him a long time to learn, and he has not yet fully learned,[3] that with events other than human actions he could not expect the same kind of " explanation " as he can hope to obtain in the case of human behaviour.

That the ordinary concepts of the kind of things that surround us do not provide an adequate classification which enables us to state general rules about their behaviour in different circumstances, and that in order to do so we have to replace them by a different classification of events is familiar. It may, however, still sound surprising that what is true of these provisional abstractions should also be true of the very sense qualities which most of us are inclined to regard as the ultimate reality. But although the idea that science breaks up and replaces the system of classification which our sense qualities represent is less familiar, yet this is precisely what Science does. It begins with the realisation that things which appear to us the same do not always behave in the same manner, and that things which appear different to us sometimes prove in all other respects to behave in the same way; and it proceeds from this experience to substitute for the classification of events which our senses provide a new one which groups together not what appears alike but what proves to behave in the same manner in similar circumstances.

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[1] This view was, I believe, first explicitly formulated by the German physicist G. Kirchhoff and later made widely known through the philosophy of Ernst Mach.

[2] The word " explain " is only one of many important instances where the natural sciences were forced to use concepts originally formed to describe human phenomena. " Law " and " cause ", " function " and " order ", " organism " and " organisation " are others of similar importance where Science has more or less succeeded in freeing them from their anthropomorphic connotations, while in other instances, particularly, as we shall see, in the case of " purpose ", though it cannot entirely dispense with them, it has not yet succeeded in doing so and is therefore with some justification afraid of using these terms.

[3] Cf. T. Percy Nunn, *Anthropomorphism and Physics* (*Proceedings of the British Academy*, vol. XIII), 1926.

While the naïve mind tends to assume that external events which our senses register in the same or in a different manner must be similar or different in more respects than merely in the way in which they affect our senses, the systematic testing of Science shows that this is frequently not true. It constantly shows that the "facts" are different from "appearances". We learn to regard as alike or unlike not simply what by itself looks, feels, smells, etc., alike or unlike, but what regularly appears in the same spatial and temporal context. And we learn that the same constellation of simultaneous sense perceptions may prove to proceed from different "facts", or that different combinations of sense qualities may stand for the same "fact". A white powder with a certain weight and "feel" and without taste or smell may prove to be any one of a number of different things according as it appears in different circumstances or after different combinations of other phenomena, or as it produces different results if combined in certain ways with other things. The systematic testing of behaviour in different circumstances will thus often show that things which to our senses appear different behave in the same or at least a very similar manner. We may not only find that, e.g., a blue thing which we see in a certain light or after eating a certain drug is the same thing as the green thing which we see in different circumstances, or that what appears to have an elliptical shape may prove to be identical with what at a different angle appears to be circular, but we may also find that phenomena which appear as different as ice and water are "really" the same "thing".

This process of re-classifying "objects" which our senses have already classified in one way, of substituting for the "secondary" qualities in which our senses arrange external stimuli a new classification based on consciously established relations between classes of events is, perhaps, the most characteristic aspect of the procedure of the natural sciences. The whole history of modern Science proves to be a process of progressive emancipation from the innate classification of the external stimuli till in the end they completely disappear and "physical science has now reached a stage of development that renders it impossible to express observable occurrences in language appropriate to what is perceived by our senses. The only appropriate language is that of mathematics",[1] i.e. the discipline developed to describe complexes of relationships between elements which have no attributes except these relations. While at first the new elements into which the physical world was " analysed " were still endowed with " qualities ", i.e. conceived as in principle visible or touchable, neither electrons nor waves, neither the atomic structure nor electromagnetic fields can be adequately represented by mechanical models.

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[1] L. S. Stebbing, *Thinking to Some Purpose* ("Pelican" Books), 1939, p. 107. Cf. also B. Russell, *The Scientific Outlook*, 1931, p. 85.

The new world which man thus creates in his mind, and which consists altogether of entities which cannot be perceived by our senses, is yet in a definite way related to the world of our senses. It serves, indeed, to explain the world of our senses. The world of Science might in fact be described as no more than a set of rules which enables us to trace the connections between different complexes of sense perceptions. But the point is that the attempts to establish such uniform rules which the perceptible phenomena obey have been unsuccessful so long as we accepted as natural units, given entities, such constant complexes of sense qualities as we can simultaneously perceive. In their place new entities, " constructs ", are created which can be defined only in terms of sense perceptions obtained of the " same " thing in different circumstances and at different times—a procedure which implies the postulate that the thing has in some sense remained the same although all its perceptible attributes may have changed.

In other words, although the theories of physical science at the stage which has now been reached can no longer be stated in terms of sense qualities, their significance is due to the fact that we possess rules, a " key ", which enables us to translate them into statements about perceptible phenomena. One could compare the relation of modern physical theory to the world of our senses to that between the different ways in which one might " know " a dead language existing only in inscriptions in peculiar characters. The combinations of different characters of which these inscriptions are composed and which are the only form in which the language occurs correspond to the different combinations of sense qualities. As we come to know the language we gradually learn that different combinations of these characters may mean the same thing and that in different contexts the same group of characters may mean different things.[1] As we learn to recognise these new entities we penetrate into a new world where the units are different from the letters and obey in their relations definite laws not recognisable in the sequence of the individual letters. We can describe the laws of these new units, the laws of grammar, and all that can be expressed by combining the words according to these laws, without ever referring to the individual letters or the principle on which they are combined to make up the signs for whole words. It would be possible, e.g., to know all about the grammar of Chinese or Greek and the meaning of all the words in these languages without knowing Chinese or Greek characters (or the sounds of the Chinese or Greek words). Yet if Chinese or Greek occurred only written in their respective characters all this knowledge would be of as little use as knowledge of the laws of nature in terms of abstract entities or constructs without knowledge of the rules by which these can be translated into statements about phenomena perceptible by our senses.

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[1] The comparison becomes more adequate if we conceive only small groups of characters, say words, to appear to us simultaneously, while the groups as such appear to us only in a definite time sequence, as the words (or phrases) actually do when we read.

As in our description of the structure of the language there is no need for a description of the way in which the different units are made up from various combinations of letters (or sounds), so in our theoretical description of nature the different sense qualities through which we perceive nature disappear. They are no longer treated as part of the object and come to be regarded merely as ways in which we spontaneously perceive or classify external stimuli.[1]

The problem how man has come to classify external stimuli in the particular way which we know as sense qualities does not concern us here.[2] There are only two connected points which must be briefly mentioned here and to which we must come back later. One is that, once we have learnt that the things in the external world show uniformity in their behaviour towards each other only if we group them in a way different from that in which they appear to our senses, the question why they appear to us in that particular way, and especially why they appear in the same[3] way to different people becomes a genuine problem calling for an answer. The second is that the fact that different men do perceive different things in a similar manner which does not correspond to any known relation between these things in the external world, must be regarded as a significant datum of experience which must form the starting point in any discussion of human behaviour.

We are not interested here in the methods of the Sciences for their own sake and we cannot follow up this topic further. The point we mainly wanted to stress was that what men know or think about the external world or about themselves, their concepts and even the subjective qualities of their sense perceptions are to Science never ultimate reality, data to be accepted. Its concern is not what men think about the world and how they consequently behave, but what they ought to think. The concepts which men actually employ, the way in which they see nature, is to the scientist necessarily a provisional affair and his task is to change this picture, to change the concepts in use so as to make more definite and certain our statements about the new classes of events.

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[1] The old puzzle over the miracle that qualities which are supposed to attach to the things are transmitted to the brain in the form of indistinguishable nervous processes differing only in the organ which they affect, and then in the brain re-translated into the original qualities, ceases to exist. We have no evidence for the assumption that the things in the external world in their relations to each other differ or are similar in the way our senses suggest to us. In fact we have in many instances evidence to the contrary.

[2] It may just be mentioned that this classification is probably based on a pre-conscious learning of those relationships in the external world which are of special relevance for the existence of the human organism in the kind of environment in which it developed, and that it is closely connected with the infinite number of "conditioned reflexes" which the human species had to acquire in the course of its evolution. The classification of the stimuli in our central nervous system is probably highly "pragmatic" in the sense that it is not based on all observable relations between the external things, but stresses those relations between the external world (in the narrower sense) and our body which in the course of evolution have proved significant for the survival of the species. The human brain will e.g. classify external stimuli largely by their association with stimuli emanating from the reflex action of parts of the human body caused by the same external stimulus without the intervention of the brain.

[3] That different people classify external stimuli in the "same" way does not mean that individual sense qualities are the same for different people (which would be a meaningless statement) but that the systems of sense qualities of different people have a common structure (are homeomorphic systems of relations).

There is one consequence of all this which in view of what follows requires a few more words. It is the special significance which numerical statements and quantitative measurements have in the natural sciences. There is a widespread impression that the main importance of this quantitative nature of most natural sciences is their greater precision. This is not so. It is not merely adding precision to a procedure which would be possible also without the mathematical form of expression—it is of the essence of this process of breaking up our immediate sense data and of substituting for a description in terms of sense qualities one in terms of elements which possess no attributes but these relations to each other. It is a necessary part of the general effort of getting away from the picture of nature which man has now, of substituting for the classification of events which our senses provide another based on the relations established by systematic testing and experiment.

To return to our more general conclusion: the world in which Science is interested is not that of our given concepts or even sensations. Its aim is to produce a new organisation of all our experience of the external world and in doing so it has not only to remodel our concepts but also to get away from the secondary sense qualities and to replace them by a different classification of events. The picture which man has actually formed of the world and which guides him well enough in his daily life, his perceptions and concepts, are for Science not an object of study but an imperfect instrument to be improved. Nor is Science as such interested in the relation of man to things, in the way in which man's existing view of the world leads him to act. It *is* rather such a relation, or better a continuous process of changing these relationships. When the scientist stresses that he studies objective facts he means that he tries to study things independently of what men think or do about them. The views people hold about the external world is to him always a stage to be overcome.

But what are the results of people perceiving the world and each other in a certain manner, as sensations and concepts which for different people are organised in a similar structure? What can we say about the whole network of activities in which men are guided by the kind of knowledge they have and a great part of which at any time is common to most of them ? While Science is all the time busy revising the picture of the external world that man possesses, and while to it this picture is always provisional, the fact that man has a definite picture, and that the picture of all beings whom we recognise as thinking men and whom we can understand is to some extent alike, is no less a reality of great consequence and the cause of certain events. Till Science has literally completed its work and not left the slightest unexplained residue in man's intellectual processes, the facts of our mind remain not only data to be explained but also data on which the explanation of human action guided by those mental phenomena must be based. Here a new set of problems arises with which the scientist does not directly deal. Nor is it obvious that the particular methods to which he has become used would be appropriate to these problems. The question is here not how far man's picture of the external world fits the facts, but how by his actions, determined by the views and concepts he possesses, man builds up another world of which the individual becomes a part. And by "the views and concepts people hold" we do not mean merely their knowledge of external nature. We mean all they know and believe about themselves, other people, and the external world, in short everything which determines their actions, including science itself.

This is the field to which the social studies or the "moral sciences" address themselves.

III

Before we proceed further to consider the effect of scientism on the study of society it will be expedient briefly to survey the peculiar object and the methods of the social studies. They deal, not with the relations between things, but with the relations between men and things or the relations between man and man. They are concerned with man's actions and their aim is to explain the unintended or undesigned results of the actions of many men.

Not all the disciplines of knowledge which are concerned with the life of men in groups, however, raise problems which differ in any important respect from those of the natural sciences. The spread of contagious diseases is evidently a problem closely connected with the life of man in society and yet its study has none of the special characteristics of the social sciences in the narrower sense of the term. Similarly the study of heredity, or the study of nutrition, or the investigation of changes in the number or age composition of populations, do not differ significantly from similar studies of animals.[1] And the same applies to certain branches of anthropology, or ethnology, in so far as they are concerned with racial characteristics or other physical attributes of men. There are, in other words, natural sciences of man which do not necessarily raise problems with which we cannot cope with the methods of the natural sciences. Wherever we are concerned with unconscious reflexes or processes in the human body there is no obstacle to treating and investigating them " mechanically " as caused by objectively observable external events. They take place without the knowledge of the person concerned and without his having power to modify them ; and the conditions under which they are produced can be established by external observation without recourse to the assumption that the person observed classifies the external stimuli in any way differently from that in which they can be defined in purely physical terms.

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[1] Most of the problems of this latter group will, however, raise problems of the kind characteristic of the social sciences proper when we attempt to explain them.

The social sciences in the narrower sense, i.e. those which used to be described as the moral sciences,[1] are concerned with man's conscious or reflected action, actions where a person can be said to choose between various courses open to him, and here the situation is essentially different. The external stimulus which may be said to cause or occasion such actions can of course also be defined in purely physical terms. But if we tried to do so for the purposes of explaining human action, we would confine ourselves to less than we know about the situation. It is not because we have found two things to behave alike in relation to other things, but because they appear alike to us, that we expect them to appear alike to other people. We know that people will react in the same way to external stimuli which according to all objective tests are different, and perhaps also that they will react in a completely different manner to a physically identical stimulus if it affects their body in different circumstances or at a different point. We know, in other words, that in his conscious decisions man classifies external stimuli in a way which we know solely from our own subjective experience of this kind of classification. We take it for granted that other men treat various things as alike or unlike as we do, although no objective test, no knowledge of the relations of these things to other parts of the external world justifies this. Our procedure is based on the experience that other people as a rule (though not always—e.g. not if they are colourblind or mad) classify their sense impressions as we do.

But we not only know this. It would be impossible to explain or understand human action without making use of this knowledge. People do behave in the same manner towards things, not because these things are identical in a physical sense, but because they have learnt to classify them as belonging to the same group, because they can put them to the same use or expect from them what to the people concerned is an equivalent effect. In fact, most of the objects of social or human action are not " objective facts " in the special narrow sense in which this term is used by the Sciences and contrasted to " opinions ", and cannot at all be defined in physical terms. So far as human actions are concerned the things *are* what the people acting think they are.

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[1] Sometimes the German term *Geisteswissenschaften* is now used in English to describe the social sciences in the specific narrow sense with which we are here concerned. But considering that this German term was introduced by the translator of J. S. Mill's *Logic* to render the latter's " moral sciences ", there seems to be little case for using this translation instead of the original English term.

This is best shown by an example for which we can choose almost any object of human action. Take the concept of a " tool " or " instrument ", or of any particular tool such as a hammer or a barometer. It is easily seen that these concepts cannot be interpreted to refer to " objective facts ", i.e. to things irrespective of what people think about them. Careful logical analysis of these concepts will show that they all express relationships between several (at least three) terms, of which one is the acting or thinking person, the other some desired or imagined effect, and the third a thing in the ordinary sense. If the reader will attempt a definition he will soon find that he cannot give one without using some terms such as " suitable for " or " intended for " or some other expression referring to the use for which it is designed by somebody.[1] And a definition which is to comprise all instances of the class will not contain any reference to its substance, or shape, or other physical attribute. An ordinary hammer and a steam-hammer, or an aneroid barometer and a mercury barometer, have nothing in common except the purpose for which men think they can be used.

It must not be objected that these are merely instances of abstractions to arrive at generic terms just as those used in the physical sciences. The point is that they are abstractions from *all* the physical attributes of the things in question and that their definitions must run entirely in terms of mental attitudes of men towards the things. The significant difference between the two views of the things stands out clearly if we think e.g. of the problem of the archæologist trying to determine whether what looks like a stone implement is in truth an " artefact ", made by man, or merely a chance product of nature. There is no way of deciding this but by trying to understand the working of the mind of prehistoric man, of attempting to understand how he would have made such an implement. If we are not more aware that this is what we actually do in such cases and that we necessarily rely on our own knowledge of the working of a human mind, this is so mainly because of the difficulty (or impossibility) of conceiving of an observer who does not possess a human mind and interprets what he sees in terms of the working of his own mind.

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[1] It has often been suggested that for this reason economics and the other theoretical sciences of society should be described as " teleological " sciences. This term is, however, misleading as it is apt to suggest that not only the actions of individual men but also the social structures which they produce are deliberately designed by somebody for a purpose. It leads thus either to an " explanation " of social phenomena in terms of ends fixed by some superior power or to the opposite and no less fatal mistake of regarding all social phenomena as the product of conscious human design, to a " pragmatic " interpretation which is a bar to all real understanding of these phenomena. Some authors, particularly O. Spann, have used the term " teleological " to justify the most abstruse metaphysical speculations. Others, like K. Englis, have used it in an unobjectionable manner and sharply distinguished between " teleological " and " normative " sciences. (See particularly the illuminating discussions of the problem in K. Englis, *Teleologische Theorie der Wirtschaft*, Brünn, 1930.) But the term remains nevertheless misleading. If a name is needed the term " praxeological " sciences, deriving from A. Espinas, adopted by T. Kotarbinsky and E. Slutsky, and now clearly defined and extensively used by L. v. Mises (*Nationalökonomie*, Geneva, 1940) would appear to be the most appropriate.

There are no better terms available to describe this difference between the approach of the natural and the social sciences than to call the former objective and the latter subjective. Yet these terms are ambiguous and without further explanation their use might prove misleading. While for the natural scientist the contrast between objective facts and subjective opinions is a simple one, the distinction cannot as readily be applied to the object of the social sciences. The reason for this is that the object, the " facts " of the social sciences are also opinions—not opinions of the student of the social phenomena, of course, but opinions of those whose actions produce his object. In one sense his facts are thus as little " subjective " as those of the natural sciences, because they are independent of the particular observer; what he studies is not determined by his fancy or imagination but is equally given to the observation by different people. But in another sense in which we distinguish facts from opinions the facts of the social sciences are merely opinions, views held by the people whose actions we study. They differ from the facts of the physical sciences in being beliefs or opinions held by particular people, beliefs which as such are our data, irrespective of whether they are true or false, and which, moreover, we cannot directly observe in the minds of the people but recognise from what they do and say merely because we have ourselves a mind similar to theirs.

In the sense in which we here use the contrast between the subjectivist approach of the social sciences and the objectivist approach of the natural sciences it says little more than what is commonly expressed by saying that the former deal in the first instance with the phenomena of individual minds, or mental phenomena, and not directly with material phenomena. They deal with phenomena which can be understood only because the object of our study has a mind of a structure similar to our own. That this is so is no less an empirical fact than our knowledge of the external world. It is shown not merely by the possibility of communicating with other people—we act on this knowledge every time we speak or write; it is confirmed by the very results of our study of the external world. So long as it was naïvely assumed that all the sense qualities (or their relations) which different men had in common were properties of the external world it could be argued that our knowledge of other minds is no more than our common knowledge of the external world. But once we have learnt that our senses make things appear to us alike or different which prove to be alike or different in none of their relations between themselves, but only in the way in which they affect our minds, this fact that men classify external stimuli in a particular way becomes a significant fact of experience. While qualities disappear from our scientific picture of the external world they must remain part of our scientific picture of the human mind. In fact the elimination of qualities from our picture of the external world does not mean that these qualities do not " exist ", but that when we study qualities we study not the physical world but the mind of man.

The reason why it is expedient to retain the terms " subjective " and " objective " for the contrast with which we are concerned, although they inevitably carry with them some misleading associations, is not only that the terms " mental " and " material " carry with them an even worse burden of metaphysical associations and that at least in economics[1] the term " subjective " has long come to be used precisely in the sense in which we use it here. What is more important is that the term " subjective " stresses another important fact to which we shall yet have to refer : that the knowledge and beliefs of different people, while possessing that common structure which makes communication possible, will yet be different and often conflicting in many respects. If we could assume that all the knowledge and beliefs of different people were identical, or if we were concerned with a single mind, it would not matter whether we described it as an " objective " fact or as a subjective phenomenon. But the concrete knowledge which guides the action of any group of people never exists as a consistent and coherent body. It only exists in the dispersed, incomplete, and inconsistent form in which it appears in many individual minds and this dispersion and imperfection of all knowledge is one of the basic facts from which the social sciences have to start. What philosophers and logicians often contemptuously dismiss as " mere " imperfections of the human mind becomes in the social sciences a basic fact of crucial importance. We shall later see how the opposite " absolutist " view, as if knowledge, and particularly the concrete knowledge of particular circumstances, were given " objectively ", i.e. as if it were the same for all people, is a source of constant errors in the social sciences.

The " tool " or " instrument " which we have before used as an illustration of the objects of human action can be matched by similar instances from any other branch of social study. A " word " or a " sentence ", a " crime " or a " punishment ",[2] are of course not objective facts in the sense that they can be defined without referring to our knowledge of people's conscious intentions with regard to them. And the same is true quite generally wherever we have to explain human behaviour towards things ; these things must then not be defined in terms of what we might find out about these things by the objective methods of science, but in terms of what the person acting thinks about them. A medicine or a cosmetic, e.g., for the purposes of social study, are not what cures an ailment or improves a person's looks, but what people think will have that effect. Any knowledge which we may happen to possess about the true nature of the material thing, but which the people whose action we want to explain do not possess, is as little relevant to the explanation of their actions as our private disbelief in the efficiency of a magic charm will help us to understand the behaviour of the savage who believes in it. If in investigating our contemporary society the "laws of nature" which we have to use as a datum because they affect people's actions are approximately the same as those which figure in the works of the natural scientists, this is for our purposes an accident which must not deceive us about the different character of these laws in the two fields. What is relevant in the study of society is not whether these laws of nature are true in any objective sense, but solely whether they are believed and acted upon by the people. If the current "scientific" knowledge of the society we study included the belief that the soil will bear no fruit till certain rites or incantations are performed, this would be quite as important for us as any law of nature which we now believe to be correct. And all the "physical laws of production" which we meet, e.g., in economics, are not physical laws in the sense of the physical sciences but people's beliefs about what they can do.

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[1] I believe also in the discussions on psychological methods.

[2] It is sheer illusion when some sociologists believe that they can make " crime " an objective fact by defining it as those acts for which a person is punished. This only pushes the subjective element a step further back, but does not eliminate it. " Punishment " is still a subjective thing which cannot be defined in objective terms. If, e.g., we see that every time a person commits a certain act he is made to wear a chain round his neck, this does not tell us whether it is a reward or a punishment.

What is true about the relations of men to things is, of course, even more true of the relations between men, which for the purposes of social study cannot be defined in the objective terms of the physical sciences but only in terms of human beliefs. Even such a seemingly purely biological relationship as that between parent and child is in social study not defined in physical terms and cannot be so defined for their purposes: it makes no difference as regards people's actions whether their belief that a particular child is their natural offspring is mistaken or not.

All this stands out most clearly in that among the social sciences whose theory has been most highly developed, economics. And it is probably no exaggeration to say that every important advance in economic theory during the last hundred years was a further step in the consistent application of subjectivism.[1] That the objects of economic activity cannot be defined in objective terms but only with reference to a human purpose goes without saying. Neither a "commodity" or an "economic good", nor "food" or "money", can be defined in physical terms but only in terms of views people hold about things. Economic theory has nothing to say about the little round disks of metal as which an objective or materialist view might try to define money. It has nothing to say about iron or steel, timber or oil, or wheat or eggs as such. The history of any particular commodity indeed shows that as human knowledge changes the same material thing may represent quite different economic categories. Nor could we distinguish in physical terms whether two men barter or exchange or whether they are playing some game or performing some religious ritual. Unless we can understand what the acting people mean by their actions any attempt to explain them, i.e., to subsume them under rules which connect similar situations with similar actions, are bound to fail.

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[1] This is a development which has probably been carried out most consistently by L. v. Mises and I believe that most peculiarities of his views which at first strike many readers as strange and unacceptable are due to the fact that in that consistent development of the subjectivist approach he has for a long time moved ahead of his contemporaries. Probably all the characteristic features of his theories, from his theory of money (so much ahead of his time in 1912 !) to what he calls his *a priorism*, his views about mathematical economics in general and the measurement of economic phenomena in particular, and his criticism of planning all follow directly (although, perhaps, not all with the same necessity) from this central position. See particularly his *Grundprobleme der Nationalökonomie* (Jena, 1933) and *Nationalökonomie* (Geneva, 1940).

This essentially subjective character of all economic theory, which it has developed much more clearly than any other branch of the social sciences, but which I believe it has in common with all the social sciences in the narrower sense, is best shown by a closer consideration of one of its simplest theorems, e.g., the "law of rent". In its original form this was a proposition about changes in the value of a thing defined in physical terms, namely land. It stated, in effect,[1] that changes in the value of the commodities in the production of which land was required would cause much greater changes in the value of land than in the value of the other factors whose co-operation was required. In this form it is an empirical generalisation which tells us neither why nor under what conditions it will be true. In modern economics its place is taken by two distinct propositions of different character which combined lead to the same conclusion. One is part of pure economic theory and asserts that whenever in the production of one commodity different (scarce) factors are required in proportions which can be varied, and of which one can be used only for this (or only for comparatively few) purposes while the others are of a more general usefulness, a change in the value of the product will affect the value of the former more than that of the latter. The second proposition is the empirical statement that land is as a rule in the position of the first kind of factor, i.e. that people know of many more uses for their labour than they will know for a particular piece of land. The first of these propositions, like all propositions of pure economic theory, is a statement about the implications of certain human attitudes towards things and as such necessarily true irrespective of time and place. The second is an assertion that the conditions postulated in the first exist at a given time and with respect to a particular piece of land because the people dealing with it hold certain beliefs about its usefulness and the usefulness of other things required in order to cultivate it. As an empirical generalisation it can of course be disproved and frequently will be disproved. If, e.g., a piece of land is used to produce some special fruit the cultivation of which requires a certain rare skill, the effect of a fall in the demand for the fruit may fall exclusively on the wages of the men with the special skill, while the value of the land may remain practically unaffected. In such a situation it would be labour to which the "law of rent" applies. But when we ask: "why?" or: "how can I find out whether the law of rent will apply in any particular case?", no information about the physical attributes of the land, the labour, or the product can give us the answer. It depends on the subjective factors stated in the theoretical law of rent; and only in so far as we can find out what the knowledge and beliefs of the people concerned are in the relevant respects shall we be in a position to predict in what manner a change in the price of the product will affect the prices of the factors. What is true of the theory of rent is true of the theory of price generally: it has nothing to say about the behaviour of the price of iron or wool, of things of such and such physical properties, but only about things about which people have certain beliefs and which they want to use in a certain manner. And our explanation of a particular price phenomenon can therefore also never be affected by any additional knowledge which we (the observers) acquire about the good concerned, but only by additional knowledge about what the people dealing with it think about it.

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[1] In the extreme Ricardian form the statement is, of course, that a change in the value of the product will affect *only* the value of the land and leave the value of the co-operating labour altogether unaffected. In this form (connected with Ricardo's "objective" theory of value) the proposition can be regarded as a limiting case of the more general proposition given in the text.

We cannot here enter into a similar discussion of the more complex phenomena with which economic theory is concerned and where in recent years progress has been particularly closely connected with the advance of subjectivism. We can only point to the new problems which these developments make appear more and more central, such as the problem of the compatibility of intentions and expectations of different people, of the division of knowledge between them, and the process by which the relevant knowledge is acquired and expectations formed.[1] We are not here concerned, however, with the specific problems of economics, but with the common character of all disciplines which deal with the results of conscious human action. The points which we want to stress are that in all such attempts we must start from what men think and mean to do, from the fact that the individuals which compose society are guided in their actions by a classification of things or events in a system of sense qualities and concepts which has a common structure and which we know because we, too, are men, and that the concrete knowledge which different individuals possess will differ in important respects. Not only man's action towards external objects but also all the relations between men and all the social institutions can be understood only in terms of what men think about them. Society as we know it is, as it were, built up from the concepts and ideas held by the people; and social phenomena can be recognised by us and have meaning to us only as they are reflected in the minds of men.

The structure of men's mind, the common principle on which they classify external events, provide us with the knowledge of the recurrent elements of which different social structures are built up and in terms of which we can alone describe and explain them. While concepts or ideas can, of course, exist only in individual minds, and while, in particular, it is only in individual minds that different ideas can act upon another, it is not the whole of the individual minds in all their complexity, but the individual concepts, the views people have formed of each other and the things, which form the true elements of the social structure. If the social structure can remain the same although different individuals succeed each other at particular points, this is not because the individuals which succeed each other are completely identical, but because they succeed each other in particular relations, in particular attitudes they take towards other people and as the objects of particular views held by other people about them. The individuals are merely the *foci* in the network of relationships and it is the various attitudes of the individuals towards each other (or their similar or different attitudes towards physical objects) which form the recurrent, recognisable and familiar elements of the structure. If one policeman succeeds another at a particular post, this does not mean that the new man will in all respects be identical with his predecessor, but merely that he succeeds him in certain attitudes towards his fellow man and as object of certain attitudes of his fellow men which are relevant to his function as policeman. But this is sufficient to preserve a constant structural element which can be separated and studied in isolation.

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[1] For some further discussion of these problems see the author's article "Economics and Knowledge", ECONOMICA, February, 1937.

While we can recognise these elements of human relationships only because they are known to us from the working of our own minds, this does not mean that the significance of their combination in a particular pattern relating different individuals must be immediately obvious to us. It is only by the systematic and patient following up of the implications of many people holding certain views that we can understand, and often even only learn to see, the unintended and often uncomprehended results of the separate and yet interrelated actions of men in society. That in this effort to reconstruct these different patterns of social relations we must relate the individual's action not to the objective qualities of the persons and things towards which he acts, but that our data must be man and the physical world as they appear to the men whose actions we try to explain, follows from the fact that only what people know or believe can enter as a motive into their conscious action.

IV

At this point it becomes necessary to interrupt the main argument for a little in order to safeguard ourselves against a misconception which might arise from what has just been said. The stress which we have laid on the fact that in the social sciences our data or " facts " are themselves ideas or concepts must, of course, not be understood to mean that all the concepts with which we have to deal in the social sciences are of this character. There would be no room for any scientific work if this were so; and the social sciences no less than the natural sciences aim at revising the popular concepts which men have formed about the objects of their study, and at replacing them by more appropriate ones. The special difficulties of the social sciences and much confusion about their character derive precisely from the fact that in them ideas appear in two capacities, as it were, as part of their object and as ideas about the object. While in the natural sciences the contrast between the object of our study and our explanation of it coincides with the distinction between ideas and objective facts, in the social sciences it is necessary to draw a distinction between those ideas which are *constitutive* of the phenomena we want to explain and the ideas which either we ourselves or the very people whose actions we have to explain may have formed *about* these phenomena and which are not the cause of, but theories about, the social structures.

This special difficulty of the social sciences is a result not merely of the fact that we have to distinguish between the views held by the people which are the object of our study and our views about them, but also from the fact that the people who are our object themselves not only are motivated by ideas but also form ideas about the undesigned results of their actions—popular theories about the various social structures or formations which we share with them and which our study has to revise and improve. The danger of substituting " concepts " (or " theories ") for the " facts " is by no means absent in the social sciences and failure to avoid it has exercised as detrimental an effect here as in the natural sciences[1]; but it appears on a different plane and is very inadequately expressed by the contrast between " ideas " and " facts ". The real contrast is between ideas which by being held by the people become the causes of a social phenomenon and the ideas which people form about that phenomenon. That these two classes of ideas are distinct (although in different contexts the distinction may have to be drawn differently[2]) can easily be shown. The changes in the opinions which people hold about a particular commodity and which we recognise as the cause of a change in the price of that commodity stand clearly in a different class from the ideas which the same people may have formed about the causes of the change in price or about the " nature of value " in general. Similarly, the beliefs and opinions which lead a number of people regularly to repeat certain acts, e.g. to produce, sell, or buy certain quantities of commodities, are entirely different from the ideas they may have formed about the whole of the " society ", or the " economic system ", to which they belong and which the aggregate of all their actions constitutes. The first kind of opinions and beliefs are a condition of the existence of the " wholes " which would not exist without them ; they are, as we have said, " constitutive ", essential for the existence of the phenomenon which the people refer to as " society " or the " economic system ", but which will exist irrespectively of the concepts which the people have formed about these wholes.

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[1] Cf. the excellent discussions of the effects of *Begriffsrealismus* on economics in W. Eucken, *Die Grundlagen der Nationalökonomie*, Jena, 1940, pp. 29 *et seq.*

[2] In some contexts concepts which by another social science are treated as mere theories to be revised and improved upon may have to be treated as data. One could, e.g., conceive of a " science of politics " showing what kind of political action follows from the people holding certain views on the nature of society and for which these views would have to be treated as data. But while in man's actions towards social phenomena, i.e. in explaining his political actions, we have to take his views about the constitution of society as given, we can on a different level of analysis investigate their truth or untruth. The fact that a particular society may believe that its institutions have been created by divine intervention we would have to accept as a fact in explaining the politics of that society; but it need not prevent us from showing that this view is probably false.

It is very important that we should carefully distinguish between the motivating or constitutive opinions on the one hand and the speculative or explanatory views which people have formed about the wholes ; confusion between the two is a source of constant danger. It is the ideas which the popular mind has formed about such collectives as " society " or the " economic system ", " capitalism " or " imperialism ", and other such collective entities, which the social scientist must regard as no more than provisional theories, popular abstractions, and which he must not mistake for facts. That he consistently refrains from treating these pseudo-entities as " facts ", and that he systematically starts from the concepts which guide individuals in their actions and not from the results of their theorising about their actions, is the characteristic feature of that methodological individualism which is closely connected with the subjectivism of the social sciences. The scientistic approach, on the other hand, because it is afraid of starting from the subjective concepts determining individual actions, is, as we shall presently see, regularly led into the very mistake it attempts to avoid, that of treating as facts those collectives which are no more than popular generalisations. Trying to avoid using as data the concepts held by individuals where they are clearly recognisable and explicitly introduced as what they are, people brought up in scientistic views frequently and naïvely accept the speculative concepts of popular usage as definite facts of the kind they are familiar with.

We shall have to discuss the nature of this collectivist prejudice inherent in the scientistic approach more fully in a later section.

A few more remarks must be added about the specific theoretical method which corresponds to the systematic subjectivism and individualism of the social sciences. From the fact that it is the concepts and views held by individuals which are directly known to us and which form the elements from which we must build up, as it were, the more complex phenomena follows another important difference between the method of the social disciplines and the natural sciences. While in the former it is the attitudes of individuals which are the familiar elements and by the combination of which we try to reproduce the complex phenomena, the results of individual actions, which are much less known—a procedure which often leads to the *discovery* of principles of structural coherence of the complex phenomena which had not (and perhaps could not) be established by direct observation—the physical sciences must needs commence with the complex phenomena of nature and work backwards to infer the elements from which they are composed. The place where the human individual stands in the order of things brings it about that in one direction what he perceives are the comparatively complex phenomena which he analyses, while in the other direction what is given to him are elements from which more complex phenomena are composed which he cannot observe as wholes.[1] While the method of the natural sciences is in this sense analytic, the method of the social sciences is better described as compositive[2] or synthetic. It is the so-called wholes, the groups of elements which are structurally connected, which we learn to single out from the totality of observed phenomena only as a result of our systematic fitting together of the elements with familiar properties, and which we build up or reconstruct from the known properties of the elements.

It is important to observe that in all this the various types of individual beliefs or attitudes are not themselves the object of our explanation, but merely the elements from which we build up the structure of possible relationships between individuals. In so far as we analyse individual thought in the social sciences the purpose is not to explain that thought but merely to distinguish the possible types of elements with which we shall have to reckon in the construction of different patterns of social relationships. It is a mistake, to which careless expressions by social scientists often give countenance, to believe that their aim is to *explain* conscious action. This, if it can be done at all, is a different task, the task of psychology. For the social sciences the types of conscious action are data[1] and all they have to do with regard to these data is to arrange them in such orderly fashion that they can be effectively used for their task.[2] The problems which they try to answer arise only in so far as the conscious action of many men produce undesigned results, in so far as regularities are observed which are not the result of anybody's design. If social phenomena showed no order except in so far as they were consciously designed, there would indeed be no room for theoretical sciences of society and there would be, as is often argued, only problems of psychology. It is only in so far as some sort of order arises as a result of individual action but without being designed by any individual that a problem is raised which demands a theoretical explanation. But although people dominated by the scientistic prejudice are often inclined to deny the existence of any such order (and thereby the existence of an object for theoretical sciences of society), few if any would be prepared to do so consistently : that at least language shows a definite order which is not the result of any conscious design can scarcely be questioned.

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[1] Cf. Robbins, *An Essay on the Nature and Significance of Economic Science*, 2nd ed., 1935, p. 105: "In Economics . . . the ultimate constituents of our fundamental generalisations are known to us by immediate acquaintance. In the natural sciences they are known only inferentially." Perhaps the following quotation from an earlier essay of my own (*Collectivist Economic Planning*, 1935, p. 11) may help further to explain the statement in the text: "The position of man, midway between natural and social phenomena—of the one of which he is an effect and of the other a cause—brings it about that the essential basic facts which we need for the explanation are part of common experience, part of the stuff of our thinking. In the social sciences it is the elements of the complex phenomena which are known to us beyond the possibility of dispute. In the natural sciences they can be at best surmised." Cf. also C. Menger, *Untersuchungen über die Methoden der Socialwissenschaften*, 1883, p. 157, note: "Die letzten Elemente, auf welche die exacte theoretische Interpretation der Naturphänomene zurückgehen muss, sind 'Atome' und 'Kräfte'. Beide sind unempirischer Natur. Wir vermögen uns 'Atome' überhaupt nicht, und die Naturkräfte nur unter einem Bilde vorzusstellen, und verstehen wir in Wahrheit unter den letzteren lediglich die uns unbekannten Ursachen realer Bewegungen. Hieraus ergeben sich für die exacte Interpretation der Naturphänomene in letzter Linie ganz ausserordentliche Schwierigkeiten. Anders in den exacten Socialwissenschaften. Hier sind die menschlichen *Individuen* und *ihre Bestrebungen*, die letzen Elemente unserer Analyse, empirischer Natur und die exacten theoretischen Sozialwissenschaften somit in grossem Vortheil gegenüber den exacten Naturwissenschaften. Die 'Grenzen des Naturerkennens' und die hieraus für das theoretische Verständnis der Naturphänomene sich ergebenden Schwierigkeiten bestehen in Wahrheit nicht für die exacte Forschung auf dem Gebiete der Socialerscheinungen. Wenn A. Comte die 'Gesellschaften' als reale Organismen, und zwar als Organismen komplicirterer Art, denn die naturlichen, auffasst und ihre theoretische Interpretation als das unvergleichlich komplicirtere und schwierigere wissenschaftliche Problem bezeichnet, so findet er sich somit in einem schweren Irrthume. Seine Theorie wäre nur gegenüber Socialforschern richtig, welche den, mit Rücksicht auf den heutigen Zustand der theoretischen Naturwissenschaften, geradezu wahnwitzigen Gedanken fassen würden, die Gesellschaftsphänomene nicht in specifisch socialwissenschaftlich, sondern in naturwissenschaftlich-atomistischer Weise interpretiren zu wollen."

[2] I borrow the term "compositive" from a manuscript note of Carl Menger who in his personal annotated copy of Schmoller's review of his *Methoden der Socialwissenschaften* (*Jahrbuch für Gesetzgebung, etc.*, N.F., 7, 1883, p. 42) wrote it above the word "deductive" used by Schmoller.

The reason of the difficulty which the natural scientist experiences in admitting the existence of such an order in social phenomena is that these orders cannot be stated in physical terms, that if we define the elements in physical terms no such order is visible, and that the units which show an orderly arrangement do not (or at least need not) have any physical properties in common (except that men react to them in the " same " way—although the " sameness " of different people's reaction will again, as a rule, not be definable in physical terms). It is an order in which things behave in the same way because they mean the same thing to man. If, instead of regarding as alike and unlike what appears so to the acting man, we were to take for our units only what Science shows to be alike or unlike, we should probably find no recognisable order whatever in social phenomena—

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[1] As Robbins (l.c., p. 86) rightly says, economists in particular regard " the things which psychology studies as the data of their own deductions."

[2] That this task absorbs a great part of the economist's energies should not deceive us on the fact that by itself this " pure logic of choice " (or " economic calculus ") does not explain any facts. For the precise relationship between the pure theory of the economic calculus and its use in the explanation of social phenomena I must once more refer to my article " Economics and Knowledge " (ECONOMICA, February, 1937). It should perhaps be added that while economic theory might be very useful to the director of a completely planned system in helping him to see what he ought to do to achieve his ends, it would not help us to explain his actions—except in so far as he was actually guided by it.

at least not till the natural sciences had completed their task of analysing all natural phenomena into their ultimate constituents and psychology had also fully achieved the reverse task of explaining in all detail how the ultimate units of physical science come to appear to man just as they do, i.e. how that apparatus of classification operates which our senses constitute.

It is only in the very simplest instances that it can be shown briefly and without any technical apparatus how the independent actions of individuals will produce an order which is no part of their intentions ; and in those instances the explanation is usually so obvious that we never stop to examine the type of argument which leads us to it. The way in which tracks are formed in a wild broken country is such an instance. At first everyone will seek for himself what seems to him the best path. But the fact that such a path has been used once is likely to make it easier to traverse and therefore more likely to be used again ; and thus gradually more and more clearly defined tracks arise and come to be used to the exclusion of other possible ways. Human movements through the district come to conform to a definite pattern which, although the result of deliberate decisions of many people, has yet not been consciously designed by anyone. This explanation of how this happens is an elementary " theory " applicable to hundreds of particular historical instances ; and it is not the observation of the actual growth of any particular track, and still less of many, from which this explanation derives its cogency, but from our general knowledge of how we and other people behave in the kind of situation in which the successive people find themselves who have to seek their way and who by the cumulative effect of their action create the path. It is the elements of the complex of events which are familiar to us from everyday experience, but it is only by a deliberate effort of directed thought that we come to see the necessary effects of the combination of such actions by many people. We " understand " the way in which the result we observe can be produced, although we may never be in a position to watch the whole process or to predict its precise course and result.[1]

The physicist who wishes to understand the problems of the social sciences with the help of an analogy from his own field would have to imagine a world in which he knew by direct observation the inside of the atoms and had neither the possibility of making experiments with lumps of matter nor opportunity to observe more than the interactions of a comparatively few atoms during a limited period. From his knowledge of the different kinds of atoms he could build up models of all the various ways in which they could combine into larger units and make these models more and more closely reproduce all the features of the few instances in which he was able to observe more complex phenomena. But the laws of the macrocosm which he could derive from his knowledge of the microcosm would always remain "deductive"; they would, because of his limited knowledge of the data of the complex situation, scarcely ever enable him to predict the precise outcome of a particular situation; and he could never verify them by controlled experiment—although they might be disproved by the observation of events which according to his theory are impossible.

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[1] It makes no difference for our present purpose whether the process extends over a long period of time as it does in such cases as the evolution of money or the formation of language, or whether it is a process which is constantly repeated anew as in the case of the formation of prices or the direction of production under competition. The former instances raise theoretical (i.e. generic) problems (as distinguished from the specifically historical problems in the precise sense which we shall have to define later) which are fundamentally similar to the problems raised by such recurring phenomena as the determination of prices. Although in the study of any particular instance of the evolution of an " institution " like money or the language the theoretical problem will frequently be so overlaid by the consideration of the particular circumstances involved (the properly historical task), this does not alter the fact that any explanation of a historical process involves assumptions about the kind of circumstances that can produce certain kinds of effects—assumptions which, where we have to deal with results which were not directly willed by somebody, can only be stated in the form of a generic scheme, in other words a theory.

In a sense some problems of theoretical astronomy are more similar to those of the social sciences than those of any of the experimental sciences. Yet there remain important differences. While the astronomer aims at knowing all the elements of which his universe is composed, the student of social phenomena cannot hope to know more than the types of elements from which his universe is made up. He will scarcely ever even know of all the elements of which it consists and he will certainly never know all the relevant properties of each of them. The inevitable imperfection of the human mind becomes here not only a basic datum about the object of explanation but, since it applies no less to the observer, also a limitation on what he can hope to accomplish in his attempt to explain the observed facts. The number of separate variables which in any particular social phenomenon will determine the result of a given change will as a rule be far too large for any human mind to master and manipulate them effectively.[1] In consequence our knowledge of the principle by which these phenomena are produced will rarely if ever enable us to predict the precise result of any concrete situation. While we can explain the principle on which certain phenomena are produced and can from this knowledge exclude the possibility of certain results, e.g. of certain events occurring together, our knowledge will in a sense be only negative, i.e. it will merely enable us to preclude certain results but not enable us to narrow the range of possibilities sufficiently so that only one remains.

The distinction between an explanation merely of the principle on which a phenomenon is produced and an explanation which enables us to predict the precise result is of great importance for the understanding of the theoretical methods of the social sciences. It arises, I believe, also elsewhere, e.g. in biology, and certainly in psychology. It is, however, somewhat unfamiliar and I know no place where it is adequately explained. The best illustration in the field of the social sciences is probably the general theory of prices as represented, e.g., by the Walrasian or Paretian systems of equations. These systems show merely the principle of coherence between the prices of the various types of commodities of which the system is composed, but without knowledge of the numerical values of all the constants which occur in it and which we never do know, this does not enable us to predict the precise results which any particular change will have.[1] Quite apart from this particular case, a set of equations which shows merely the form of a system of relationships but does not give the values of the constants contained in it, is perhaps the best general illustration of an explanation merely of the principle on which any phenomenon is produced.

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[1] Cf. M. R. Cohen, *Reason and Nature*, p. 356: "If, then, social phenomena depend upon more factors than we can readily manipulate, even the doctrine of universal determinism will not guarantee an attainable expression of laws governing the specific phenomena of social life. Social phenomena, though determined, might not to a finite mind in limited time display any laws at all."

This must suffice as a positive description of the characteristic problems of the social sciences. It will become clearer as we contrast in the following sections the specific procedure of the social sciences with the most characteristic aspects of the attempts to treat their object after the fashion of the natural sciences.

(*To be continued.*)

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[1] Pareto himself has clearly seen this. After stating the nature of the factors determining the prices in his system of equations, he adds (*Manuel d'économie politique*, 2nd ed., 1927, pp. 233–4): "It may be mentioned here that this determination has by no means the purpose of arriving at a numerical calculation of prices. Let us make the most favourable assumptions for such a calculation; let us assume that we have triumphed over all the difficulties of finding the data of the problem and that we know the *ophélimités* of all the different commodities for each individual, and all the conditions of production of all the commodities, etc. This in already an absurd hypothesis to make. Yet it is not sufficient to make the solution of the problem possible. We have seen that in the case of 100 persons and 700 commodities there will be 70,699 conditions (actually a great number of circumstances which we have so far neglected will still increase that number); we shall, therefore, have to solve a system of 70,699 equations. This exceeds practically the power of algebraic analysis, and this is even more true if one contemplates the fabulous number of equations which one obtains for a population of forty millions and several thousand commodities. In this case the roles would be changed: it would not be mathematics which would assist political economy, but political economy which would assist mathematics. In other words, if one really could know all these equations, the only means to solve them which is available to human powers is to observe the practical solution given by the market." Compare also A. Cournot, *Researches into the Mathematical Principles of the Theory of Wealth* (1938), trs. by N. T. Bacon, New York, 1927, p. 127, where he says that if in our equations we took the entire economic system into consideration "this would surpass the powers of mathematical analysis and of our practical methods of calculation, even if the values of all the constants could be assigned to the numerically."

Book Reviews

Native Labour in South Africa. By SHEILA T. VAN DER HORST. Oxford University Press. 1942. xii + 340 pp. 18s.

This book is an objective, comprehensive and well-documented survey of the history and present position of native (i.e., Bantu) labour in South Africa. It should be of the greatest help to the British reader who wishes to understand the economic realities of that country, and it is to be hoped that it will enjoy a wide circulation in South Africa itself, where objectivity is not so common a virtue that its rare appearances can safely be ignored.

As presented by Dr. van der Horst, the history of native labour falls into three broad periods. During the first, which lasted into the third quarter of the nineteenth century, the Cape government, for security reasons, made repeated attempts at first to prevent and later to control the immigration of work-seeking natives from the adjoining territories,—attempts which, in face of the continual demands of the European farmers for native labour, were increasingly unsuccessful.

By the opening of the second period, the annexation of the native territories and the improvements in police organisation had greatly reduced the threat to security, while the spread of agricultural farming and the discovery of the diamond and gold mines enormously increased the demand for labour. During this period, which lasted until about the end of the century, government activity mainly took the form of efforts to increase the supply of native labour, especially by imposing heavier direct money taxes on natives, who were thus placed under an increased necessity to work for money wages. In spite of all such efforts, however, the supply remained inadequate and both native wages, especially on the mines, and the charges of recruiting agents rose sharply. To meet this rise, the Transvaal Chamber of Mines took steps to secure for itself the monopoly both of employment and of recruiting for the mines.

During the third period, which still continues, a new complication has made itself apparent. During the nineteenth century native labour had been regarded as almost exclusively complementary to European. In the twentieth, it has been increasingly feared as a competitor. This is due on the one hand to the realisation that many natives, when suitably trained, are perfectly capable of undertaking work of the sort which in South Africa is regarded as the prerogative of Europeans, and which, as an historical consequence of the high wages paid to imported labour in the nineteenth century, is customarily remunerated at nearly twice the rate paid in the United Kingdom;

and on the other to the filling-up of the land and the emergence of a class of " poor-whites " who, in the absence of state intervention, seemed doomed to compete with the native in his own field of manual labour.

We have thus seen a state of affairs where skilled white labour, often strongly unionised, received rates of wages nearly double those ruling in this country ; where native men were obliged to leave their farms and families for an average of nearly six months in each year to do unskilled work for Europeans at wages about half as high as those ruling here ; where considerable numbers of Europeans were unable or unwilling to obtain employment ; and where complaints of shortage of native labour were universal except in the very depths of trade depressions. To those who still believe that the demand for labour, like that for other commodities, varies with its price the South African situation will not appear surprising.

In the face of this situation the government, of course, has made no attempt to restore an equilibrium level in wage rates. Instead, they have attempted to stabilise the present disparities by three main lines of policy. Firstly, by more differential taxation and by measures directed against the native tenant farmer or squatter they have endeavoured to force natives to work less for themselves and more for Europeans. Secondly, a whole range of legislation has been enacted to debar natives from undertaking skilled or semi-skilled work. Direct " colour-bar " acts have been the least important of these measures ; but minimum wage acts, apprenticeship acts and lack of provision for native education have made it almost impossible for a native to find entry into a skilled trade (and incidentally have gone far towards ousting the Cape Coloured from the place in industry which they had previously held). Thirdly, by direct and indirect subsidies, by tariff threats and concessions, and by other forms of political and social pressure, efforts have been made to ensure that a good deal even of unskilled or slightly skilled work in manufacturing industries, public utilities and public works is performed by white men at wages well above those which natives would have been delighted to accept for the same work.

During the last ten years a further development of policy has appeared. Increasing restrictions are being put upon natives who wish to seek work in urban areas otherwise than upon the mines. Though Dr. van der Horst does not make this point, it seems possible that such measures, coupled with the recently announced decision to recognise native trade unions, may lead, whether intentionally or not, to a new disparity in wages—between those in manufacturing industry on the one hand and those in farming or mining on the other. Those natives fortunate enough to obtain work in factories would share to some extent in the advantages of this disparity, the problem of the employment of the poor whites would be eased, and farmers and the mines would continue to get their labour cheaply. The political advantages of enlisting a body of native vested interest on the side of wage disparities might well be held to outweigh the disadvantage of increased costs to manufacturers, already sheltered behind a high tariff.

Throughout her book, Dr. van der Horst is most careful not to be drawn into any kind of political or ethical discussion ; the farthest she goes is to question whether it has been in the true interests even of the white population to deny to South Africa the additional output and income she might have derived from making fuller use of the productive capacity of the native population. But a reviewer may perhaps add to this the still more urgent question of whether this system of conducting the affairs of a country openly and unashamedly in the interests of a quarter of the population can continue to exist side by side with the methods of colonial government which it is hoped will rule in the remainder of Africa after the war.

F. W. Paish.

The Economic Effects of Advertising. By Neil H. Borden. Chicago : Richard D. Irwin. 1942. 987 + xl pp. $5.

Advertising has never been very well digested into the body of economic analysis. It cannot be fitted into a theory of demand in which consumers with " given tastes " are depicted equalising marginal satisfactions or climbing to the optimum position on an indifference surface. It is no less disturbing to the picture of producers maximising their profits, for not only are innumerable combinations of price and advertising policy open to them in a given situation, but the yield in terms of profit of any one policy are excessively difficult to discover. The notion of a unique position of competitive equilibrium is a drastic abstraction, and the system of prices which obtains in reality is what economists call indeterminate—that is to say it depends upon an intricate complexity of factors which economists have not succeeded in reducing to any simple formula. It seems vain to hope for much progress by traditional methods of *a priori* analysis, and factual study is therefore all the more to be welcomed.

Professor Borden has carried out a valuable piece of work in his survey of the advertisement of consumers' goods in the United States. Detailed case histories are given of advertisement of a number of commodities, from automatic refrigerators to walnuts, and every aspect of the economics of advertisement is discussed in the light of these studies and of other evidence culled from a wide field. Though written in the peculiarly dreary style which business schools seem to foster, the book is unusually well arranged, clear and packed with fascinating detail.

All conclusions about the effects of advertisement must be tentative because of the impossibility of separating advertisement from the other influences upon demand and upon costs which are constantly changing along with it, but some broad generalisations it is possible to make.

Professor Borden comes to the conclusion that advertisement has on the whole little effect in moulding the general pattern of consumption. Demand for some commodities expands without any help from advertisement—he provides the example of lettuces; for others, advertisement is powerless to stem a contraction—he gives the example of men's shoes after the spread of motoring. Advertisement is important, not in expanding demand for commodities but for particular brands. An important exception must be made for new commodities, such as refrigerators, where the unassisted growth of demand would probably have been very slow.

Another point of great interest which emerges from the discussion is the rhythmical interchange of price and non-price competition. " The evidence indicates that when product differentiation is important in the mind of the consumer, and motives other than price are weighty in guiding consumer purchase, competition tends to turn from price to advertising and other non-price forms. Moreover, the more competition employs non-price forms, the greater is the spread between manufacturing cost and the price which consumers pay." But " there are strong forces to counterbalance any tendency for competition to turn solely to non-price forms. In most fields, in the course of time organisations and sellers appear who elect to offer consumers' opportunity to buy merchandise on a price basis " (page 605). A striking example of this process is provided by the history of the 10 cent cigarettes.

There is some evidence that price competition becomes more prevalent when incomes are declining. This supports Mr. Harrod's view that competition becomes more perfect after the onset of a slump.

The safeguard against excessive profit margins provided by actual or potential price competition does not operate for all commodities. For instance, in the case of tooth-paste the cheap unadvertised brand can make little headway. With cigarettes, the consumer has only to try a packet to find what they are like, but with tooth-paste he has very little idea of what he is buying, and the reputation of the advertised brands (however mythical its foundations) makes him fear that if he buys cheap he may buy something inferior or even deleterious.

Non-price competition is particularly likely to prevail where a small number of firms dominate a market so that conditions of oligopoly prevail. A price cut is something definite, which rivals will have to follow, but it is possible to steal a march upon them by advertising. Sooner or later, however, they will counter by increasing their advertising, and so competition proceeds like an armaments race between nations. The cost is thrown upon the consumer, but the producers, as a group, do not gain, since their high profit margins are largely absorbed by marketing expenses, which in many cases amount to more than fifty per cent. of gross receipts.

A large part of Professor Borden's argument is concerned with the question of whether advertising is a good thing. But it is hard to come to grips with this question, for it is impossible to separate advertising from other forms of " aggressive selling ", or to separate " aggressive selling " from the economic system of which it is an integral part. His discussion of the ethics of advertisement, though full of interesting side-issues, is therefore somewhat superficial. The question is bound up with the question of the ethics of the profit system, which his terms of reference forbid him to discuss.

JOAN ROBINSON.

The Theory of Incidence of Sales Taxation. By JOHN F. DUE. King's Crown Press, New York. 1942. 258 pp. $2.25.

There are very few good books on the theory of public finance. In particular, most of the discussions of " taxes on commodities " are very weak. The writers who assume perfect competition do not always keep to their assumptions; they often fail to discuss the transition from the old equilibrium to the new; they often ignore changes in demand schedules and factor-prices resulting from the taxation and from its expenditure by the government; and they seldom bring out the important fact that those who suffer most, in the short run, are the owners of specific and immobile factors. Nor are most discussions based on the assumption of monopoly much better. Very few writers state, for example, such an obvious proposition as that, with constant costs and straight-line demand curves, prices will rise by one-half the tax.

Professor Due puts all this right. He is just, although merciless, in his criticisms of earlier writers. His diagrams will appeal to all lovers of daigrammese. Most of them look like the railway lines at Hamm after an air-raid, but those which I have checked are all right and, as Professor Due is clearly very competent at this kind of thing, I expect they all are.

But Professor Due goes much further than this. Over a great deal of economic activity, notably in manufacturing and in retailing, neither perfect competition nor monopoly, in the usual sense, prevails. The firm is in the centre of the picture, but it is somewhat unrealistic to consider the demand curve for a firm, since the change in its sales resulting from a change in its prices will depend on how loyal its own customers, and those of its rivals, remain and also on what its rivals do. As Marshall pointed out long ago, profit margins or mark-ups—what Marshall called " the rate of profit on turnover "—depend on " custom and tradition " and, as Mr. Kaldor has explained, on the amount of excess capacity. Many a firm dare not try to maximise its profits on the assumption that everything else will remain unchanged, because it probably will not.

Professor Due flatters himself, and with reason, that he is about the first to work out a theory of the incidence of sales taxes based on these assumptions. The broad result is that, more often than not, at least the full amount of the tax will be added to the price. This is borne out by the results of the "processing taxes" in the United States. For example, the profit margin of hog processors increased by almost exactly the amount of the tax, although the tax was four times the original margin. After the tax was removed, the margin soon fell to the old level. There are, however, many possible qualifications to this broad conclusion, all of which Professor Due carefully sets out.

My only quarrel with him on theoretical grounds is that he adopts the curious theory that the rate of interest jumps about with every change in the quantity of money or in liquidity-preference. By the rate of interest he means the yield on government bonds. What needs explaining about this is not why it moves, but why it remains so surprisingly stable for several years at a time, despite large fluctuations in the quantity of money, incomes, employment, and the state of trade. And when it does change, the effect on business activity is often, to say the least, not very marked. Hence Professor Due's observations about the effect of sales taxes on interest rates, which he declares may be of considerable importance, seem to me of little value.

My main quarrel with Professor Due is that he writes such unreadable English. But the student who goes prospecting in this forbidding territory will find plenty of gold.

F. Benham.

Social and Economic Aspects of Swedish Population Movements, 1750–1933. By Dorothy Swaine Thomas. New York: The Macmillan Company. 1941. 487 pp. $6.00.

This is the first volume in a series concerned with the interrelationships between social and economic factors and population development in Sweden. Part I deals with the country as a whole from the middle of the 18th century to the early 1930's. Part II presents demographic data in terms of typological grouping of rural geographical units according to the extent of their industrialisation, and of urban units according to similar criteria; it covers the period from 1895 to 1933. As was to be expected from the author, her description of the economic and social development of the country and of the various types of communities is excellent; her analysis of the migratory movements is most informative; her approach to demographic problems is quite judicious. " Far from following a simple biological law of growth, population trends are determined by social influences within limits set by biological possibilities " (p. 221). But her analysis of vital statistics and the interrelationships between social and economic factors and nuptiality, fertility, and mortality is inadequate.

With one exception, to which I shall refer presently, the author uses " rather crude rates and indexes. More refined rates are available for the whole of Sweden for part of the time period considered, but not for regions or types of communities " (p. 5). But she mentions herself that " Gustav Sundbärg, in the first years of the 20th century, was able to prepare a detailed year-by-year tabulation of the population by age, sex, and marital status, and to compute specific fertility, mortality, and nuptiality rates extending back to the middle of the 18th century " (p. 354). Thus, refined rates are available in the most convenient form for the whole of Sweden for the entire time period considered, and the fact that they are not available for regions or types of communities can explain the use of crude rates only for Part II. The complete neglect of refined rates in Part I is the more astonishing as the author at one place in Part II (p. 331), in dealing with fertility in Västmanland County, 1901–10, makes an attempt to introduce refined rates which shows clearly how misleading cruder rates are. It appears that the general legitimate fertility rates (ratio of legitimate births to 1,000 married females aged 15–50) in agricultural, rural mixed, and rural industrial communities were 184.9, 183.8, and 193.1 respectively, while the corrected rates (based on the quinquennial legitimate fertility rates for Sweden) proved to be 185.5, 182.4, and 180.4 respectively.

It should be noted furthermore that the author in discussing demographic events sometimes misinterprets their significance. She says, for example (p. 25) : " In analysing marriage in urban and rural areas, it is important to show the rates for the two sexes separately, for it is well known that the balance between the sexes is quite different in town and country." She then shows that the urban rates for males were 78 per cent. of the rural rates in the 1860's and 124 per cent. in the 1920's, while the percentages for females were 64 and 80 respectively. But these enormous differences do not appear in the marital status of the population. The author apparently overlooked the fact that marriages usually take place in the community where the bride lives, while the future residence of the couple is usually in the community where the bridegroom lives, and that one must be very cautious in drawing conclusions from marriage rates of males and females in rural and urban areas.

But these defects in the treatment of vital statistics do not alter the fact that this book should be studied by everyone interested in the social and economic development of Sweden with particular reference to migrations.

R. R. KUCZYNSKI.

Deficit Spending and the National Income. By HENRY H. VILLARD. New York: Farrar & Rinehart. 1941. 429 pp. $3.50.

This is an elaborate book, and difficult to summarise. Substantially, however, it consists of two elements—a critical synthesis of multiplier theory, and an attempt to deduce the effect of Government spending on American prosperity between 1930 and 1939.

The terminology which the author has chosen is based upon the relationship between " the amount of savings which may go into capital balances " and " the amount of investment entrepreneurs are willing to undertake " ; he is at pains to define these phrases with precision, and to relate them to the allied concepts of other formulations. This leads him to a survey of the work of Kahn, J. M. Clark, Mitnitzky, Keynes and others, based upon an attempt at explicit definition of the terms which each uses. This middle section of the book is difficult, and not very rewarding in relation to the author's principal objective. The reconciliation of different theories by reducing them to their lowest common denominator may help to remove future misunderstandings, but a reviewer's chief concern must be with the more constructive sections of the book.

Here Professor Villard has brought together figures of the " total net income-increasing expenditure " of the Federal and local Governments of the United States, and in his principal Table (p. 326) has compared them quarterly with indices of business activity over the decade he has studied. This comparison at once brings out one of the major difficulties of such a study. When can deficit expenditure be guaranteed to be " net income-increasing " ? To this question Professor Villard devotes considerable space ; his conclusion, based to some extent on the peculiarities of American banking conditions, is that it depends on the existence of " excessive " reserves. Since these did not become marked until late in 1933, the Governmental " net income-increasing expenditure " to which he attributes the impulse towards recovery did not really get into its stride until 1934. It is therefore with natural caution that he interprets the influence of deficit spending during the early part of the decade.

It is surely just here, however, that the weakness of the arithmetical case for the benefits of deficit spending becomes apparent. Business recovery in the United States would appear to date, as elsewhere throughout the world, from about the middle of 1932 (with a temporary set-back early in 1933, due to the banking breakdown). Government " net income-increasing expenditure ", however, averaged only $1,600 millions annually from mid-1929 to the end of 1933, as compared with $3,600 millions from 1934–36 inclusive (p. 323). Although Governmental expenditure throughout the world no doubt contributed in some measure to business recovery, it would seem inherently more probable that the primary factor was a normal Trade-Cycle upturn which fed upon itself.

Further cause to doubt the effectiveness of Government deficits is to be found in a subsidiary Table (p. 347), which compares the outlets for monetary saving—business outlets, housing, changes in consumer credit and inventories, with Government deficit spending in the four years 1923, 1929, 1936 and 1937. Making all reservations for the inevitable uncertainty of the figures employed (estimates by Lauchlin Currie), this Table, as indeed the author points out, throws into strong relief the limitations of trade cycle control by public works. Between 1929 and 1936 Government deficit spending rose from $693 millions a year to $3,827 millions; but during that period the fall in business outlets for saving was from $10,157 millions to $5,783 millions. Out of the whole complex problem facing the Roosevelt Administration, the last pair of figures alone goes far to explain the weakness of the apparatus at the Government's disposal.

For this ineffectiveness, however, the author is inclined to blame chiefly the catastrophic fall in expenditure on housing ($4,395 millions in 1923, $3,193 millions in 1929, and only $1,374 millions in 1936). It is true that this decline alone almost offset the growth of the Government deficit, but it is by no means clear that the decline was to any material extent independent of the general fall in business activity. Nevertheless, Professor Villard is certainly right to include an intensive housing programme as a central feature in his recommendations. For such a programme the United States, in particular, offers ample scope.

There is no space here to discuss the interesting problems presented by the recession of 1937. The reader will, however, find cause to reflect with disquietude upon the immensely greater problem which awaits the post-war world. Although Professor Villard does not explicitly draw this moral, it would seem that effective control of trade cycle peaks and troughs may be impossible in normal times because Government activity cannot offset a large enough fraction of the vicissitudes of free enterprise. Only during a war is the proportion of the national effort controlled by Government agencies large enough to overbear fluctuations in private activity. Since it must be anticipated that the release, after the war is won, of the banked-up demands of industry will intensify the heights and depths of these periodic surges of commercial activity, the prospect for a libertarian economy is not an attractive one.

J. K. HORSEFIELD.

Price Control; The War Against Inflation. By ERIK T. H. KJELLSTROM, GUSTAVE HENRY GLUCK, PER JACOBBSON and IVAN WRIGHT. New Brunswick: Rutgers University Press. 1942. 171 pp. $2.50.

About one-third of this book is devoted to a fairly detailed study of the measures of price-control utilised in Sweden during the present War. The remaining two-thirds contains briefer sketches of the expedients adopted in Canada, Great Britain and Switzerland.

The authors' purpose is to throw light upon the price problems of the United States by surveying the resourcefulness of democratic planning elsewhere. The general impression to be derived is encouraging; experience in all four countries surveyed seems to show that determination on the part of the authorities, combined with commonsense and goodwill on the part of the community, can avoid the dangers of inflation by the judicious use of price-stops, rationing and wage-controls.

It is evident that the similarities of the machinery evolved largely outweigh any differences of detail, especially when there is taken into account the differing degrees of self-sufficiency and importing-ability which the four countries display. The absence of a consistent plan for the four contributions and of an index, however, makes it rather difficult to contrast the tactics of the four countries when faced with similar problems, and thus detracts from the book's usefulness to the American confronting his own.

Probably the most significant fact brought out is the weakness of the British system in regard to wage-increases. This is even more important than Mr. Gluck shows, since it is not made clear how wide a disparity exists under war conditions between changes in wage-rates and actual increases in earnings.

J. K. Horsefield.

Some South Indian Villages: A Resurvey. Edited by P. J. Thomas and R. C. Ramakrishnan. University of Madras. 1940. 435 pp. Rs. 9.

The disadvantage of village and other local surveys in the past has largely been that they have usually covered only one short period, so that the picture obtained has been static, and has therefore thrown but little light on the trend of development. A very cordial welcome must, therefore, be accorded to the re-survey, in 1936–7, of nine out of the twelve villages of South India, which were originally surveyed twenty years earlier under Dr. Gilbert Slater's guidance.

The re-surveys were ably planned by Professor P. J. Thomas and Mr. Ramakrishnan. The scheme of enquiry fills 16 pages in the volume under review, and shows improvement in various respects on that utilised by Dr. Slater. The data collected have been chosen to enable comparison, as far as possible, with the original survey, but include more details on such matters as size and fragmentation of holdings, family budgets, money-lending, village trade, and wages; whilst an attempt has even been made at a census of production.

The general picture and conclusions as to the general trend during the past two decades presented by the surveys are distinctly disappointing. In the words of the editors " deterioration or stagnation in some vital points outshadows the definite improvements that have been made in some aspects of rural life in the last two decades ". Efforts have undoubtedly been made by the Government and in some cases by the leaders of the people to improve rural conditions and methods and types of cultivation, to encourage trade and to stimulate interest in local administration and welfare, but the beneficial results of these efforts have been largely frustrated by the fall in prices which accompanied the depression of the thirties.

The general trend may be shortly summarised as follows. Population has increased, at rates varying between 2 per cent. and 30 per cent., in all the villages except one. Brahmins and skilled artisans have tended to leave the villages (mainly for the sake of obtaining better means of livelihood) but this loss in numbers has been more than counterbalanced by the natural growth of population. The number of separate families has also been increased by the gradual breakdown of the joint family system. Pressure of population on the land has, therefore, increased, and has been accompanied by more unemployment and underemployment. The average size of holdings has fallen, whilst fragmentation remains unabated ; the leasing of land, absentee land-owning and the number of landless peasants have all tended to increase.

No attempt has been made either to consolidate holdings or to protect tenant rights. The burden of the land revenue has risen (from between 3 per cent. and 16 per cent. of net revenue, to between 20 per cent. and 33 per cent.) owing to a fall of some 50 per cent. in the prices of staple crops. There has been no great change in crops or methods of cultivation, except for a highly regrettable decline in the cultivation of vegetables. Few new wells have been sunk or fruit trees planted. Not many improvements in cultivation and implements introduced by the Department of Agriculture have been taken up and pursued in earnest, although it is asserted that the villagers are not unwilling to accept advice when the methods advocated are within their means. " The impression that we get," say the editors, " of all these trials is that most of them were haphazard and were taken up and given up without adequate consideration ". They add that " it is not easy to understand why simple remedies for pests, the supply of approved seeds and inexpensive implements and cultivation of green manure crops should not have become popular ". The most neglected branch of agriculture is animal husbandry ; many old, sick and useless animals are left alive, pasture is inadequate, there are no enclosures, there is little systematic breeding or rearing and little improvement in the yield of milk. Indebtedness has increased ; new debts were incurred during the relatively prosperous war and war-post years, mainly for the purchase of land and construction of better houses, but when the depression came credit was frozen, and the burden of debt increased. Interest rates, it is true, have fallen by about 50 per cent., but it is more difficult to secure loans. Only three cooperative credit societies are now at work, representing an infinitesimal part of the credit needed. Cooperative credit has been tried in all but two of the villages, but has failed miserably in most.

The general standard of living remains wretchedly low, and a high proportion of total income is spent on food. Diets are inadequate and ill-balanced, although there is increased reliance upon rice, instead of upon the millets, and a remarkable increase in coffee consumption. The diet is seriously deficient in proteins and fats, though carbohydrates are in excess of requirements. So far as can be judged from the inadequate data, the money incomes of farmers have declined by 30 to 50 per cent. Farms are still over-manned, but under-capitalised.

Rural industries show little progress: hand spinning has become a mere memory, and despite better loans, weavers' earnings have declined. There is a serious lack of suitable by-industries.

The physical facilities for marketing, especially motor bus services, have greatly improved, but the organisation and finance of marketing remain unchanged.

Although only a small proportion of total output is sold in a market, the villages are less self-sufficient—even in food—than hitherto, whilst there has been a considerable increase in markets, fairs and retail shops.

There has been a marked increase in literacy and school attendance, but no active movement for adult education. The primary schools are free, but attendance is not compulsory. Some improvement in local administration and in village sanitation is discernable, especially since the passing of the Madras Village Panchayat Act in 1920; but there is still great need to protect water supplies and for better conservancy measures, whilst great reluctance to raise revenue for village purposes is evinced.

In general it can be concluded that progress has been more marked in the social than in the specifically economic sphere. The most remarkable change noted by the surveyors is in the attitude of the higher castes and richer ryots towards the depressed communities, although unfortunately it must be admitted that social emancipation does not necessary lead direct to economic gain.

The editors include a number of useful suggestions in their comments, amongst which attention may be particularly called to the desirability of linking land revenue demand with the level of prices, and to the potentialities of seasonal factories (such as rice and oil mills, cotton gins, ground-nut decorticators and sugar-cane crushers) which might utilise the hydro- and thermo-electricity which is becoming increasingly available, and which could well be dovetailed with agricultural work.

VERA ANSTEY.

Soviet Russia. Anatomy of a Social History. By E. STRAUSS. London: John Lane. 1941. 342 pp. 12s. 6d. net.

I must confess that it required a great effort of will on my part to read to the end this pretentious work constructed with the aid of scissors and paste. But the author, in his preface, asserts that " this book attempts to discover the reality behind the highly coloured surface . . . . it is with facts and actions that this book is mainly concerned . . . ." And Harold G. Laski, in his review of this book, stated that " this is in many ways the most illuminating book on Russia that has been published for some time " (*The New Statesman and Nation*, November 1st, 1941). Thus, in spite of the negative impression obtained from the first part of the book, I decided to read it to the end.

Unfortunately it only proved to be a waste of time. This book is not " the most illuminating book on Russia ", but, on the contrary, a most misinforming book. It is the type of book in which an author, before attempting to make a thorough research in the discussed problems, knows already beforehand what he will say and to what conclusions he will come. Accordingly his task is limited to " search " for the facts which will support his *a priori* set-up " theses ". Well-known facts, fished out by the author from secondary sources (exclusively from material already published in English and German), served him for an illustration of *his scheme* of the development of economic and social life in the U.S.S.R. This scheme is very simple : Soviet power has detached itself from the interests of the people, has degenerated into the despotic rule of the Party oligarchy, new bureaucratical and workers' aristocracy has betrayed the socialist ideals and principles and the whole process of development " is the transformation of a movement inspired by great ideals into the narrow-minded self-centred, and short-sighted regime of to-day " (page 8). This " transformation " began already in the cradle of the Soviet power and steadily developed throughout the whole period of the existence of this power, merely acquiring new features in different periods. Already in the first years of Soviet rule " the Soviet State developed into a bureaucratic state of the old pattern—minus the safeguards for individual liberty which had been adopted in most civilized countries " (p. 56). As a result, " after some years of Soviet rule Lenin himself sadly confessed that the Soviet State was nothing but the old Tsarist State anointed only with a little Soviet oil " (p. 67)—apparently confessed to the author personally, as he does not give the source from which he took this very important " confession ".

It is quite natural to ask oneself why it happened that revolutionary intellectuals headed by Lenin, the majority of whom had spent many years in Tsarist prisons or political exile for the profession of their Socialist ideals, and revolutionary workers who fought in the Civil War for their ideals and from whom were recruited, in this period, nearly the whole of the personnel of the State and political apparatus of the country, immediately transformed themselves into despotic bureaucratic rulers as soon as they started to rule the State ? The explanation given by the author is quite simple—because the mass of the workers were "prevented from political expression. . . . Instead of political democracy, a revolutionary but despotic dictatorship of a tiny minority established its rule; instead of industrial management by a well-organized central planning authority (organised by whom in this period ?—this question does not worry the author) an amateurish democracy developed which tried to decide by majority vote technical and commercial problems of the greatest intricacy" (pp. 69–70). But a little further on (page 80) he comes to the conclusion that "the Soviet power could not put its best men in charge of industry, and these men could not use their best energies for the reorganization of production because they were predominantly concerned with the decisive social question of defeating workers' management." From all these processes the author draws quite "logical" conclusions: "The most important cause of the pernicious effects of War Communist policy on the productive forces of the country was the bureaucratization of the Soviet power which used its enormous strength in order to establish itself as an independent social power, and which satisfied the interests of workers and peasants only when they coincided with the interests of the bureaucracy or when irresistible pressure compelled it to give in" (p. 91). Fortunately "the Kronstadt rebellion destroyed the genuine illusion of the bureaucratic rulers who believed that the maintenance of their power was identical with the victory of Socialism."

Such was the sad end of War Communism, and the arch-bureaucratic ruler Lenin with all his myrmidons then introduced N.E.P. During N.E.P. despotic bureaucratic rulers continued their horrible policy. Hypocritically they even preferred to call profit a "commercial principle". The truth is that they used the odious word "profit" quite openly; if the author would bother to look at the normal status of Trusts published in 1923 he would find that this is the case. The term "commercial principle" was introduced only in the thirties and indeed has a different meaning from profit. Then "The very perfection of the bureaucratic machine widened the gulf between its members and the social forces of the country. The rulers found it increasingly difficult to bear in mind, or, indeed, even to see the elemental material interests of the social classes, the workers and the peasants" (p. 126). As for the workers: "Regarded not as a social class but as an agent of production, the fate of the working-class during these years was pretty much the same as that of the mechanical apparatus of industry or that of the cultivated land" (p. 146). Such was the sad position of the workers during the period of 1924–1928! The Soviet powers deliberately created possibilities for the "kulaks" to strengthen not only their economic but also their political position, by refraining "from curbing the power of the kulaks while there was still time to do so" (p. 157). "It was the social policy of the Government which had permitted the kulaks to become powerful enough to challenge the Soviet power" (p. 160). And in a long tedious oration the author "explains" that if the Soviet power had curtailed the kulaks at the right time it would have been possible to avoid such rude measures as were employed in 1929–30 when it was necessary to liquidate the kulaks and to accomplish this under much less favourable conditions than before. All his economic arguments on this point are as convincing as the advice to kill a hen in order to get all her eggs at once instead of getting them in due time and hatching, in time, new producers.

All the positive achievements in the U.S.S.R. were obtained or occurred only because "material interests of the bureaucratic dictatorship pushed it into a definitely progressive direction. It was in its interests to suppress attempts of the old ruling classes to restore their rule, it was further in its interests to reconstruct the social and economic system on a new and stable basis and for this purpose a numerous, better educated and well contented working-class was absolutely essential," etc., etc. (p. 166).

All these analyses bring the author to the following conclusions: "It is clear that socialism, as understood by the international labour movement and as a genuine alternative to capitalism, has not been realized in the Soviet Union. . . . The common workman is at present neither politically nor economically able to protect his interests and the Government effectively prevents him from all attempts to do so; the Soviet State protects a system *where the relative comfort of a small minority is bought at the price of continued exploitation of the majority of common workers*" (p. 318). "It may be safely assumed that a breakdown of the present regime in Fascist countries, whether it is a practical proposition or not, would lead to the resurrection of a broad working-class movement with directly Socialist aims. Not even such a modest forecast can be made for the Soviet Union . . . It is probably a safe estimate that the workers of Soviet Russia are at present farther removed from reaching a Socialist order of society than the workers of Fascist countries would be immediately after the breakdown of the Fascist regime" (p. 319). "The Soviet Government has attempted to safeguard itself by a policy of supporting Fascism . . . this attempt has failed", and the author advises nevertheless that "to-day it is in the interests of Government and people alike to fight to the bitter end", and quite unexpectedly states that "the peoples of the Soviet Union and their Government are fighting for their lives and for the preservation of achievements which are, in spite of all, worth fighting and dying for" (p. 329).

This allowance, however, the author makes only in his postcript, when it happened that the Soviet Government was forced to cease "supporting fascist States" and defend herself against their attacks.

Such is the main scheme of this book which pretends to give a "convincing solution of the 'riddle' of Russia" and to deal only with facts. We find it necessary to deal with this book at such length because the author succeeded very skilfully in collecting a great mass of well known facts about Soviet economic development in order to support his theory, and because this material can be quite convincing to persons who have not directly studied the economic and social development of the Soviet Union. In reality the book is not even a distorting mirror reflecting the true facts but a false and tendentious exposition which can only mislead the reader.

ALEXANDER BAYKOV.

Productivity, Wages, and National Income. By SPURGEON BELL. The Institute of Economics of The Brookings Institution. Publication No. 81. Washington, D.C. 1940. xii + 344 pp. $3.

Economists have even in recent years been rather reluctant to give technical progress the prominent place which it deserves. All too often, the temptation to treat what is essentially the creation of new factors of production as variations of combinations of existing factors proves stronger than the zest for exploring new problems. An empirical study of the effects of technical progress in the distribution of incomes in the United States during the inter-War period is therefore more than welcome.

In the present volume, the sixth in the well-known series published by The Brookings Institution, Dr. Spurgeon Bell traces these effects not only for the American economy as a whole, but also separately for the four most important industrial groups—manufacturing industries, railways, mining, and electric light and power. Moreover, a considerable portion of the book (chapters VI to X) is taken up by detailed statistical investigations into the relationships between productivity, output, and incomes as in the twenties and thirties they developed in five selected industries.

Perhaps inevitably, Dr. Bell's main conclusions, that productivity in American industries between 1923 and 1938 showed a remarkable increase in all divisions, but that the volume of production in general did not expand in proportion to the increase in productivity, so that under-utilisation of resources deprived the American people of much of the fruits of progress, will appear a somewhat meagre result of such vast industry. But the reader with a taste for the discovery of new facts and relevant detail will none the less find his reward in the closer study of the charts and tables. To the present reviewer the most striking discovery was the decisive influence of the New Deal on the distribution of the gains from technical progress. After 1933 these gains (and sometimes more than that) went entirely to the wage earners in the form of higher wage rates, while prior to that year they were divided between consumers and the recipients of profits. Dr. Bell finds in almost every industry a remarkably close correspondence between wholesale prices and wage cost per unit, except " in the late twenties when the decline in wage costs was not accompanied by as great a decline in wholesale prices" (50), a hint which students of industrial fluctuations will not fail to note.

Dr. Bell's treatment of capital and its productivity will scarcely command universal approval. He evidently is aware of most of the facts which render the measurement of capital over periods of rapid industrial change nugatory. He knows that with unused capacity the productivity of capital becomes all but immeasurable. In speaking of the "decline of capital" after 1930 he makes it quite clear that "the decline is attributable to insolvencies and the writing down of assets because of changed conditions as well as to replacements of depreciated properties at lower cost" (48). But, unfortunately, such considerations do not seem to have convinced him of the impossibility of intertemporal comparisons of quantities of capital, nor do they prevent him from making statements like "The rate of return on capital (including interest, rent, dividends, and undistributed earnings) decreased from approximately 6.4 per cent. in 1923–24 to about 5.6 per cent. in 1936–37" (177). What is worse, even the computation of annual profit figures is vitiated by the author taking as the basis of his analysis of the distribution of industrial incomes a concept of "net value of output" which excludes depreciation. Thus, while we learn that "what happens when obsolete machinery is replaced by new before the old is worn out", is that "the saving on the new is sufficient to write off the remaining life of the old and still yield a larger income" (207), it is just this effect of technical progress which the method here employed to determine incomes conceals from us,—except in so far as it may be reflected in an accelerated "decline of capital".

These strictures are not meant to detract from the intrinsic value of a book which is a mine of useful information as well as a welcome contribution to the *rapprochement* between theoretical and empirica economics.

L. M. LACHMANN.

SHORTER NOTICES

War and British Agriculture. By D. A. E. HARKNESS. P. S. King and Son. 109 pp. 7s. 6d.

This is a well informed and well written booklet. There are chapters covering the trends in British agriculture before 1914, the expansion and decline during and immediately after the war of 1914–1918, the events which followed up to 1939 and the bearing of present policy upon farming. These chapters provide a useful guide in summary form to recent agricultural history. They are followed by a final chapter which is concerned with the future and occupies about a third of the space. The author believes that the war will not modify the broad secular trend of British farming which has been evident for three-quarters of a century, and concludes that our efforts should be directed to making it possible for farming to continue along the lines apparent before 1939. This means that any policy designed to perpetuate the structure of agriculture brought into being by the war must be avoided, that we must accept a large reduction in the ploughed area, but that a limit should be set so that the plough may continue " behind the defences thrown up by the State at some position well behind the present forward front ", and that our efforts should be devoted to re-establishing our livestock production.

International Comparisons of Food Costs. By ROBERT MORSE WOODBURY. I.L.O. Studies and Reports. Series N. (Statistics). No. 24 I.L.O., Montreal. George Allen and Unwin. 1941. ii, 82 pp. $1.

This book describes the " group basket " method of comparing international food prices. The method is based on a modification of Irving Fisher's *Ideal Index Number*, the weights used being average quantities consumed in regions with similar consumption habits. Tests for grouping countries in such regions are given, and index numbers and correction factors are calculated. The study is mainly empirical, and one cannot help feeling that the author has not given sufficient consideration to the theoretical meaning of his final index number.

Rosst Nasselenyia v Evrope. (The Growth of Population in Europe.) By B. Z. URLANIS. Moscow: State Publishing House. 1941. 436 pp. 8 roubles, 95 kopecks.

This book attempts to give a detailed history of the population of Europe (generally excluding Russia) from about 1000 A.D. to the present day. A large number of works have been examined and the author tries to reconcile divergent estimates of past populations. It would appear that the evidence on which estimates of population in the pre-Census period are based are very unreliable and it is doubtful whether the wide margin of error involved makes a re-examination worth while. As regards the nineteenth century, the author uses Census material where available, but tells us little about the non-quantitative aspect of the population problem, and does not enquire very deeply into the causes of the present falling birth rate. The book has a very extensive bibliography of Russian and non-Russian titles.

Statistical Year-book of the League of Nations, 1940–41. League of Nations. Economic Intelligence Service. Geneva. 1941. 272 pp. 10s.

Though the appearance of this familiar volume at the present time may appear a little incongruous, and though the value of some of the recent information contained in such tables as those of the finance and currency figures of the belligerents may be somewhat doubtful, there is probably more information contained in it that is not otherwise obtainable than would be true in normal times. Particularly some of the population figures, including the results of the 1939 census for Germany and for more than a dozen States which took their censuses in 1940, and 1941, will probably be available to most people in this country in no other form.

Two Papers on the Degrees of Mortality of Mankind. By EDMUND HALLEY. Edited with an Introduction by LOWELL J. REED. (A Reprint of Economic Tracts edited by G. Herberton Evans, Jr.) Baltimore: The Johns Hopkins Press. 1942. 21 pp.

One of the last reprints in this series during the editorship of its founder, the late Professor Jacob Hollander, had been John Graunt's *Natural and Political Observations upon the Bills of Mortality.* It is welcome news that the series is being continued, and the present, apparently first, number of the new series is a valuable complement to that other publication. It contains Halley's two celebrated studies of the statistics of deaths and births of the city of Breslau, originally published in the *Philosophical Transactions of the Royal Society* for 1693. The introduction is by the Professor of Biostatistics at Johns Hopkins University.

Darwin, Marx, Wagner. Critique of a Heritage. By JACQUES BARZUN. London: Secker and Warburg. 1942. xii + 420 pp. 15s.

The author of this interesting essay succeeds to some extent in showing that the triad indicated by the title represent the most influential creators of the " naturalistic " or " scientistic " conception of the world which dominates our time. It is, however, probably more stimulating in its bold conception than convincing in the detailed execution of its argument. The main defect of the study is its concentration on the year 1859 (the date of the appearance of the *Critique of Political Economy* and of the *Origin of Species* as well as of the completion of *Tristan*) which is at least twenty-five years too late if we want to understand the source of the common element which the author finds in these works. If he had gone back that space of time he would also have found in L. Feuerbach the link to Wagner, whose place in his triad the author has scarcely made sufficiently clear.

Banking Studies. By MEMBERS OF THE STAFF OF THE BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM. Waverly Press, Inc., Baltimore. 1941. x + 496 pp.

Large as is the volume of literature on the Federal Reserve System, these essays by economists and administrators engaged in the service of the Board at Washington form an extremely valuable addition. Drs. Goldenweiser and Woodlief Thomas contribute excellent reviews of the credit policy of the system and its instruments, but the special value of the volume will be found in the more detailed technical studies which summarise the legal position or describe the working of institutions. Particular mention deserve the essays on Chain Group and Branch Banking, on Bank Supervision and Examination, and on Credit and Savings Institutions other than Banks (covering the growing class of public credit agencies). The book should be widely used as a reference work, but it is too interesting and readable throughout to be described merely as that; for a work of composite authorship the standard of quality is maintained exceptionally well. The only criticism which might be offered is that there is a certain amount of overlapping between some of the essays, and that if this had been avoided room might have been found for separate studies of certain other topics, such as the control of security loans. The usefulness of the book is enhanced by a comprehensive collection of statistical matter and a full index.

Books Received

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ECONOMIC INTELLIGENCE SERVICE: *Statistical Year-Book of the League of Nations, 1940–41.* League of Nations. 1941. 272 pp. 10s.

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HALLEY, E.: *Two Papers on the Degrees of Mortality of Mankind.* The Johns Hopkins Press, Baltimore. 1942. 21 pp. $1.25.

HOBSON, O. R.: *Does Money Matter?* P. S. King and Staples Limited. 1942. 118 pp. 2s. 6d.

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INTERNATIONAL LABOUR OFFICE: *Approaches to Social Security.* International Labour Office, Montreal. P. S. King and Staples Limited. 1942. iii, 100 pp. 50 cents. 2s.

Jackson, Mabel V.: *European Powers and South-East Africa.* Longmans, Green & Co. Ltd. 1942. vi, 284 pp. 21s.

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Marget, A. K.: *The Theory of Prices.* Prentice Hall Inc., New York. 1942. xxv, 802 pp. $6.00.

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Mukerjee, R. Q.: *The Institutional Theory of Economics.* Macmillan & Co. Ltd. 1942. xv, 376 pp. 10s. 6d.

Ramaswamy, T. N.: *The Economic Problem of India.* The New Book Co., Bombay. ix, 308 pp. Rs. 10s.

Reconstruction. A Report by the Federation of British Industries. 1942. 31 pp. 6d.

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Vallarino, J. C.: *Tratado Economía Política.* A. Monteverde, Uruguay. 1942. 435 pp.

Wilson T.: *Fluctuations in Income and Employment.* Sir Isaac Pitman & Sons Ltd. 1942. x, 213 pp. 18s.

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Worsley, E. H. M.: *Europe versus America.* Jonathan Cape Ltd. 1942. 204 pp. 8s. 6d.

Woytinsky, W. S.: *Three Aspects of Labour Dynamics.* Committee on Social Security, Washington. 1942. xiv, 249 pp. $2.50.

Wright, D. McCord: *The Creation of Purchasing Power.* Harvard University Press. Oxford University Press. 1942. xiv, 251 pp. $3.00. 16s. 6d.

Marshall and His Book

By D. H. Macgregor

As this year is the centenary of Marshall's birth, one of his pupils may be allowed some personal recollections, and some observations on his book, which have arisen out of many years of using it as student and teacher.

The *Principles* is the first book on economics I ever read. There were no steps up to it through any easier literature, not even the *Economics of Industry*. You had to master it for yourself, unaided by any tutor, or by his own lectures. You could go to see him on Friday afternoons when, over Russian tea, you could put your tentative questions, which were usually answered with a mixture of seriousness and humour. It was this turn of humour which forgave your question, and put you gently right. You could see it coming when he began to concede " of course, if . . . ", and then some *curiosum*. He never gave routine lectures to make the path easier. Under some blanket title, he talked, with complete discontinuity between one lecture and another, on any matter of economic interest that had occurred to him on the way to his class, or that the morning paper had suggested. He thought that the purpose of a lecture was to stimulate the interest, and he took a mischievous pleasure in doing this by puzzling his class. Sometimes he would pause with a twinkling eye, in the hope that he had drawn someone to put a question. I have known him lecture for twenty minutes with perfect gravity, and then say that " all I have been saying up to now is perfect nonsense ". He would expect the women to have taken it down, but hoped better from the men. For he would go to his desk, with the men on his right and the women on his left and, leaning on his left elbow, would address himself to those who, he thought, were capable of doing economics. This was one of his idiosyncracies. When I was an examiner with Flux and Ashley for the Tripos, I had promised to let him have the list at once, and the only Firsts were two women, both now distinguished in public life. I did not dare to linger, when he came himself to the door ; I gave it him in silence and went. If anyone still has notes of his lectures, I wish that we could have them. It was their unconventionality which so maintained interest that you would not have missed them. I now think that, on general economics, this is a good method of teaching, but that there are not many who can make it successful ; I say so, having tried. The other master of that method was the famous Professor Blackie, of Edinburgh, of whom it was said that he allowed you to acquire Greek while he talked of many things. You were expected to fight Marshall's book with your own strength and the interest of knowing the living voice of its author. He was particularly concerned to keep us straight on Free Trade, for the Tariff Reform controversy was on in my time, and I can recall a lecture which, following on one on ships and sealing wax, began abruptly: "Mr. Chamberlain has always subtended a larger angle in my eye than any other politician, because he *pretends* to base himself on economic arguments". On this subject he was almost religious in shepherding his flock. He thought that I was slipping, and I found myself alone with him for dinner and a good chastening. He lectured, and wished to lecture, to quite small classes; his methods were only suited to this. It seems, from Sidgwick's Memoir, that Sidgwick urged him to be more topical and popular, and was sent away without any change. At his very last lecture, there were perhaps twenty of us, including what he called "all the colts in his stable," some of the more senior of his former pupils, and a few undergraduates. He looked at the meeting, drew the monopoly diagram, and explained how the supply would tend to become about halved; then waited, for Dr. Keynes to say the last words. Then, as always, his sense of dignity was great; also his impression of authority; he could not help knowing that there was as nearly as possible nobody else in the economic leadership.

In my time, there was no other book you had to know but the *Principles*. We did not read Adam Smith. We knew hardly anything at all about Marx. The historical school was liable to dangerous fallacy. There was a bedrock, which was the truth, and the way to get to it was by the use of analysis. We were soaked and stewed in the theory of Value. The intelligentsia of undergraduates who now, building from the roof down, mutter "liquidity preference" as the key idea, then sweated in puzzled faith over consumers' surplus, short-period value, and quasi-rent. Even the Trade Cycle, I think, was an application of the theory of short-period value. It is very different now. Like us, the undergraduate can answer everything out of a set, quite a small one, of diagrams, but it is a different set, and the theory of Value is, I suppose, "old academics". Yet, when we asked a question in Schools here two years ago about "representative business," there was a protest against expecting examinees to know a "new" terminology. The *Principles* may still be the donjon keep, but the fighting has gone to the outward walls.

Other sides of the subject have become far more complex, especially in respect of money. This has diminished the attention to principles. Under the gold standard, monetary theory was easy. There was nothing in it to compare, in respect of the effort it needed, with the theory of Value. The assumptions and exposition were very simple, as long as money had not become a mysterious instrument used for mysterious purposes by persons who had clothed themselves in mystery. The gold standard, free trade, and private enterprise, were accepted conditions, whereas now there is no such accepted environment of analysis. They were " that in which I was brought up ". One can be brought up, brought down, or brought back.

The *Principles* is written in a logical order. Things are wanted (Bk. 3), so they are produced (Bk. 4), and are then exchanged (Bk. 5), and the price is divided (Bk. 6). It is like the development of a plot. The most fundamental idea is the consumers' benefit, from its explanation in the third Book to the climax of the fifth, where the good monopolist or the public authority comes in to maximise it. Marshall was the first classical economist to offer a strict proof that the best results need not follow from uncontrolled private enterprise, but that the fiscal instrument can be used to limit it in one direction and encourage it in another. Transport, and local services, were specially suited for public administration. He commends the earlier economists who supported the Factory Acts, and stresses the excesses to which competition is liable. But he suspected the vitality of public administration outside its particular field, and the tendencies of combination to become restrictive. None of these opinions seems in any way to " date " his book. He held in proper disdain the various shuffles of thought that hide themselves under the name of *laissez faire*.

In the third Book, one would expect to find the link between economics and psychology. Indeed, there is no such link. He does not mention any of the leading psychologists, while he does mention people like Herrman and Banfield. Jevons had appealed to Bain, but Marshall wrote a psychology of economics for himself. I think that, in this field of human wants, economics has done more for psychology than psychology for economics. Nevertheless, I think that the theory of demand was too limited, even as an economic psychology, in its treatment of satisfactions. My main difficulty with the third Book is the individualism of the consumer. He got this direct from Jevons. The advantage or satisfaction " to him ", the spender, conceals the vicarious nature of most private expenditure, and that in turn conceals the real psychological problem of the hedonic calculus. If we say " in his estimate ", the difficulties of a vicarious estimate of satisfactions at once arises, and the judgment has to rest on much wider grounds ; so much so, that the adjustment of expenditure at the margin is often guided by what it makes the total for any purpose come to as a proportion of expenditure. Marshall was much concerned to maintain the continuity of economic thought, but in this field it may have been retained too long, so that not enough has been drawn from ethics and modern psychology. On the other hand, I think he was right in not adopting the indifference method of treating the theory of consumption, since that aims at excluding too much of the substance of choice ; and in not adopting the " simultaneous system " of prices as a substitute for the more instructive " one-by-one " method.

The idea of elasticity of demand is, in the words of de Quincey, " one of these numerous discoveries which have been made many times before they *are* made ". It was almost necessarily implicit in many economic writings, as well as in unprofessional discussions, before Adam Smith. Apart from Gregory King's well-known estimate in 1696 of its application to wheat prices, Lauderdale found instances going back to a paper in the 200th number of the *Spectator* in 1715. His own treatment of this question was published in 1804, and is one of the earliest examples of economic analysis. But he never reaches the stage of strict formulation. It was Whewell who did this first, in his two papers of 1829 and 1831. His first formula was $W = EU$, where W and U are respectively the relative changes in price and demand. " If the supply diminish in the ratio 1 : : 1-y, the price increases in the ratio 1 : : 1 + ey." This inverts Marshall's formula, which is read from price to quantity in the case of demand. In his later paper in 1850, Whewell adopted the product method of formulation. " If the price p increases to $p(1 + x)$, the product of price and quantity pq becomes $pq(1 + mx)$." This measure is $1 + e$, where e is Marshall's measure. Whewell's " equation of demand and supply " was $P'Q' = PQ(1 + MX)$. Marshall never refers to Whewell, and it is remarkable that Jevons, who must have read him, since he describes him as " nonsense ", did not grasp the importance of demand elasticity in his own Theory. Whewell also perceived that, over an arc, the elasticity was not definite, and that it would be necessary to " rest on a given medium standard price and quantity ". Lloyd and Senior both missed the concept. In 1838, it was seized by Cournot, and in 1844 by Dupuit and de Quincey. Then it only waited to be named, and this was in the book entitled *Economy of Consumption*, by R. S. Moffatt in 1878. He says (p. 122) that " while each producer is striving to extend his particular production, the permanent expansion of production of each particular commodity is limited by the elasticity of the demand for that commodity . . . Demand has at any time a measure of elasticity, greater or less according to the limitation or expansion of the supply ". Marshall's private papers were circulated in 1879, and did not include the concept. Neither Mill nor Fleeming Jenkin gave the concept a name. It does not occur in Marshall's *Economics of Industry*, published in 1879. In the *Principles*, he gave it graphic as well as algebraic measurement.

In that book, Marshall seems to have been much concerned with the question whether this elasticity was not a function of time, that is, whether there was not a short-period demand curve. He grants that " the full effect of a change in price is seldom seen at once," and in *Industry and Trade* he describes elasticity as " a gradual and sometimes uncertain process ". But both there and in the *Principles* he finally puts aside the time element with the remark that " demands which show high elasticity in the long run generally show a high elasticity almost at once ". This does not seem to be made out. Of course, in his analysis, long- and short-period supply prices are reactions to changes in demand ; to that extent, it would not have been relevant to use short elasticity with short supply curves. But it would have been relevant to changes in price initiated from the side of supply, in their relation to *increases* in demand.

Marshall was economical in his use of elasticities. Only those of demand and supply are explicit in his work. The elasticity of substitution, and other things now called " marginal propensities " are implicit. The elasticities are the fundamental co-efficients of any system which retains freedom of choice, and probably there will be more of them. An " elasticity of expectations " has already been used, and there is certainly an elasticity of efficiency in relation to rewards. But those of demand and supply rule the others ; Marshall gave them this place.

How old is his other principle of consumers' surplus ? In his analysis, it is a lynch-pin of the structure. There is no doubt that he established it, whether as a principle or a problem. Mill and Jevons did not know it, and it would usually be attributed to Dupuit in 1844. Cournot's mistakes were due to his having missed it. I think that the first perception of the principle was due to Malthus. Demand, he says, has an intensity which is " latent " at the natural price, at which the effectual demand is equal to the supply. The natural price determines the *extent* of the demand, but demand exists in the sense of willingness to pay higher prices. " If there was not a greater intensity of demand *in posse* than *in esse*, no failure of supply could raise prices ". " In this case (when a fall in price causes no change in the extent of demand), it cannot be said that no change has taken place in the demand. It may indeed exist latently in the same degree, and the actual consumers of the commodity might be perfectly ready to give what they gave before rather than go without it ". But an argument on the question was not developed until 1844, by two non-professionals, Dupuit and de Quincey independently. If Dupuit's work had been better known and more available, faster steps might have been taken in the sphere of public economics. He offered a test of public advantage in the realm of policy, and especially in the use of the fiscal instrument, from which part of his work Marshall's well-known taxation diagrams directly follow. In de Quincey's remarkable chapter, he revives Malthus' phrase. " The primary and latent action of the affirmative value must never be forgotten ", whatever is the resistance value included in the actual price. The historical steps of the argument were that, first, the antinomy of value was expressed by the contrast of " diamonds " and " water " ; then, in Malthus and de Quincey, in terms of a diamond or so much water ; then, in Dupuit and Marshall, by adding the differences, and integrating the net benefit of a supply. De Quincey did not add up ; and Mill, who quotes his " teleologic " value for a unit of supply, did not see the further step.

There are three cases to distinguish. First, the same commodity, same use, different buyers ; as when a rich man buys a book at a price aimed at poorer buyers. Second, same commodity, same buyer, different uses. These were the two cases perceived by Dupuit. Marshall took the most difficult case, where the buyer, the commodity, and the use are all the same. The result follows necessarily from the marginal construction of his demand curve. The acid test for those who deny it is the curve of the " general commodity ", with constant total market value for any buyer. But when Marshall took the argument commodity by commodity, he laid it open to a misleading monetary interpretation. This is what seems to have led Stamp to say that, on the whole of an income, there could not be any such surplus ; since, presumably, when a man is spent up, there are no higher prices which he could then offer for anything rather than go without it. On the contrary, it is only over income as a whole that the concept is completely valid. When an income is spent up, the marginal value of money to the consumer is given ; that difficulty of the " one-by-one " method is eliminated ; and he buys all his different values on marginal terms.

In the fifth Book, the increase of the surplus is considered as an aim of public policy ; the test of the policy is its effect on surplus. But in the third Book, the consumer has no such purpose. He aims at maximising his total, not his net return on expenditure. Why is it public policy to do one thing, and private policy to do another ? There is, of course, no necessary paradox in such a difference. But the shift of the utility argument does require to be observed. It would not be an answer to say that in the theory of consumption the income and the cost of getting it are taken for granted, but that in the policy argument the incomes become costs. Why should the consumer not take account of his costs of getting an income, and aim at the greatest net benefit ? The answer to this is also the answer to Professor Patten's observation that the consumers' surplus is of diminishing importance as the standard of consumption rises. Variety of consumption means that the marginal value of money increases, and that therefore the differences between marginal and intra-marginal returns diminish on all commodities of former consumption. There might be maximum surplus if only one thing were bought, down to low values of marginal return. By spreading his expenditure, the buyer does in fact maximise his surplus if the higher value included in the margin is taken into the account. Professor Patten's point is right only in so far as we neglect the amount of extra value that is always being put into the marginal outlay by making marginal outlay equivalent over a range of consumption. This becomes evident by drawing Birck's " curve of the shilling ".

It should be observed that, in a modern community, a considerable part of what is reckoned as surplus is really a return on costs which do not all appear in the supply curves of particular commodities. The shape of both demand and supply curves is affected by public expenditure, especially on general and technical education, but also on other social services. In Appendix K, Marshall observes this in respect of the outlay on training for work; but it has now a much wider range.

There is another point, when it is held that the surplus over the margin is just as much a deficit as compared with the intra-marginal values. Do we make a profit or a loss out of the fact that the usefulness of any article or service goes on diminishing? From which end are we to reckon? This is not a tenable objection. A profit is made only on an outlay, and that is made at marginal values; the consumer has not made an outlay at intra-marginal values which are not maintained.

Marshall points out that there are certain elements in workers' remuneration which are a concealed surplus which accrues out of differences in disutility of work. But in the main the difference between the producers' and the consumers' surplus is, that the former is money, while the latter is money's worth. The consumers could therefore arrange to increase their money's worth by a monetary consideration to the producers. This is, indeed, one way of looking at the consumers' surplus. "Terms might be arranged," Marshall says, and these are considered in the fifth Book, of which more later.

The importance of the principle of the consumers' surplus in Marshall's book makes another observation necessary. He said that it did not begin to count until necessary supplies had been obtained. In the sixth Book he says that "it remains true that, in the western world, the earnings that are got by efficient labour are not much above the lowest that are needed to cover the expenses of rearing and training efficient workers, and of sustaining and bringing into activity their full energies". As regards other classes, there is trouble from the doctrine of modern psychologists that there is a reduction in satisfactions in proportion as activities become habitual. The necessary is the completely habitual. This leaves the margins of consumption as the real source of satisfactions, but the whole of it as the source of welfare.

Coming to the fourth Book, there is first the distinction between the two kinds of returns. Marshall holds that there is a true and a false interpretation of diminishing returns. The true law refers to the land of the country as a whole, and in an analogous form to any resources similarly limited for a time. The false law refers to the inefficient distribution of factors in any production. Now, a similar observation applies to the other law. Decreasing cost means a relation between points on the cost curves of different scales of production; this is the true form of the law. But it has also been used of the case where a firm which has been running short comes to employ more of its capacity. This is a relation between points on the same cost curve. This is false decreasing cost. In this latter case there is nothing to explain; in the former case there is. The economy of spreading overhead costs is not the meaning of the economic law of increasing returns, and Marshall does not attach much importance to it.

What is the relation of the fourth Book to the theory of competitive price ? He says that he does not assume competition to be either pure or perfect. He always insisted in his lectures on the monopolistic elements in modern representative production, and in the *Principles* this appears particularly as the result of the outlay on building up a business connection. His typical business is a large-scale one, which can affect the price. In *Industry and Trade*, he is more explicit about the monopolistic element of custom. But he does not suppose that this causes equilibrium to take place above the minimum or full-running cost of production of a typical business. He cannot be tied down to any statement to this effect, but it is the clear sense of his argument. Indeed, the sense is, that the scale of typical production is what it is, because at that minimum the demand curve is expected to cut the cost curve. In other words again, the demand curve of a market can be split up in various ways, and one of these is into the curves of the custom of different producers. His stated condition, that no one will get a higher or take a lower price than anyone else, is not incompatible with equilibrium above minimum cost, but he clearly does not mean that this is caused under monopolistic competition as he understands it. At his equilibrium, therefore, marginal costs are not equal to marginal revenue, but average cost equals price. To put it again otherwise, typical business, though having monopolistic elements, is more influenced by its competitive than by its monopolistic conditions, and prefers holding its market to exploiting its custom.

The conception of perfect competition is taken to imply both that firms are so numerous, and therefore small, that no single producer can influence the price, and that there is a high degree of knowledge and mobility. The former condition refers to an organisation which, except as regards the supply of grains and fibres on produce markets, has passed away ; while the latter refers to a time when the conditions of knowledge and mobility are actually the result of large-scale influences, even to some extent of combination. The junction of the two is historically incongruous, so that when we say " under perfect competition " we are not representing one alternative phase of actual economic life for comparison with another. We are posing the problem, what would happen if, retaining certain results of modern evolution, we then supposed enterprise to be split up into small units. That problem can, of course, be worked out. But it should not lead us to suppose that there is an actual real alternative solution for questions of present-day equilibrium.

The real question is whether monopolistic elements will, in the absence of understandings or combination, cause what they enable, an equilibrium of running short above minimum cost. It is a paradoxical result. The issue is, how far we are to go with the equality of marginal revenue and marginal cost. It is possible to work this principle too hard. Marshall notes how it is likely to be qualified under even absolute monopoly. Under monopolistic competition, it must be dangerous for any one producer to start the process of restriction, and restriction is the practical case.

Marshall did not draw the modern U-shaped curve of the individual producer, though he implies it, so that he by-passed the problem of relating the individual cost curve to the market supply curve. An article by Viner some time ago in the *Zeitschrift* comes nearest to what Marshall taught. The minimum representative cost of a certain scale gives the supply price of a volume functionally related to that scale. But the market supply curve is not drawn through the minimum points of different representative scales ; that would at once create problems of reading it. The volume depends on a number of businesses, of all sizes, and we simply have the general consideration that the price will conform to the influence of representative firms, so as to call forth that volume of supply. With the particular expenses curve, trailing the supply curve like the tail of a comet, that made the picture, about which now more questions are asked.

Equilibrium of running short seems to me to be unstable, whether as a practical question of keeping capacity in reserve, when it is liable to cause competitive raids ; or as a strictly theoretical question, since it must be advantageous to re-organise on the restricted basis.

It cannot be anything against a concept of theory that those who have had to make practical solutions have had to use it. This is the case with the " representative " concept. I have before me a long list of extracts from public Committees, Commissions, and price-fixing bodies, which have found it the right idea to use. To Marshall, it was not an abstract idea ; he held that, in most industries, you could actually point to the firms whose costs were price-determining for the market. Having taught economics in such centres as Leeds and Manchester, I think that this is so ; and that it has confirmed itself in the practice of price leadership. In *Industry and Trade* Marshall extended the meaning of this concept so as to include some aspects of the *phase* of industry, such as the distribution of plant, and the integration of supplies. If this concept is old academics, what precisely do we mean when we have to point out that, when a Cartel is formed, the price tends to become the costs of the *marginal* firm ?

Marshall's particular expenses curve is the flash-light view of an industry at any time. The long supply curve is the locus of its highest point. But this is only because, as he explains in Appendix H, it is assumed that all producers' expectations have been realised. The Coal Commissions, the Colwyn Committee, and the price-fixing bodies in the U.S.A. showed that in fact the price-determining cost fell at a point on this curve which was often about the ninth decile of the output. The rest of the output is produced at higher costs, without being able to make the market pay them. The actual representative cost which determines the distribution of the profits and losses shown by the above enquiries is the Plimsoll mark of the P.E. curve. The Sankey Commission in particular showed how the same businesses were not always the marginal ones, and how Marshall's rise and fall of the trees of the forest meant movement to more or less advantageous positions on the P.E. curve of the mining industry.

I have never been able to accept the argument about the instability of competition under decreasing cost ; that is, that any producer who gets a good lead must tend to get a monopoly. For the fourth Book insists on the variety of methods which are used by different producers at the same time, and this seems to me to imply that at different stages their cost curves will be differently inclined. In other words, their long cost curves will be of the nature of a pleat, crossing and recrossing so as to prevent any one of them from running away with the trade.

The external economies are not very clearly dealt with. The action appears to me to be of this nature. Every industry is concerned with its staple, the material which it works up, its auxiliary materials, such as fuel, which it uses up, and its standing equipment. The expansion of the scale and organisation does not create a significant saving in respect of the staple ; twice as much cotton cloth will need about twice as much cotton. But organisation anywhere does reduce the relative requirements in auxiliaries and standing equipment. These are similar for a large range of production of different kinds—steel, building materials, etc. The strain on these supplies is relieved for everyone by the progress of organisation anywhere. For some industries, notably iron and steel, the material of the staple is also that of the equipment. Such industries gain twice by general progress in organisation ; others, such as cotton, gain once. Among extractive industries, coal gains twice, agriculture very little at all from this source.

A general criticism of the fourth Book is, that it is too much dated by the nature of the business structure with which it deals. But in fact he uses in a general sense the word " firm ", which has more usually a special sense. He says that the representative firm may be a Joint-Stock Company, and in *Industry and Trade* he even speaks of a " representative Trust ". It is not in this respect that his account is dated, but by the absence of a solution of the instabilities which he depicts. Consider the items. The small firm is, by a good margin, inefficient, but it is supported by the external economies which are associated with large-scale production. Its place is, to offer a ladder for the rise of new men in search of capital, and is, on the whole, expensively retained with that offset. The private firm has the inherent disadvantage of exhaustion of the business ability which creates it, its rise and fall, like the trees of the forest, being described as a normal result. In spite of the vivid picture of the alert business man, the result appears socially wasteful, since the qualities of such private enterprise are not maintained from one generation to another. If, to avoid this decadence, a Joint-Stock Company is formed, that " stagnates but does not decay ". Co-operation is mainly suited to retail trade, and public enterprise to local services, and transport. The " dating " of the fourth Book implies the question whether that account of investment is completely excused by its thrilling account of the rise, followed by open or disguised fall, in the efficiency of the use of resources. The private solution, through Trusts and Cartels, is also unstable ; it must be either back or forward from that position, and many authoritative present-day arguments say it must be back. Those who date Marshall are the forward planners of the control of investment, who hold that his objections to public enterprise are being met by the natural evolution of methods of control which were not foreseen in his time.

The argument on maximum welfare which concludes the fifth Book is almost the high spot of his whole argument, and is a departure of pure theory from the unqualified acceptance of private enterprise. It can lead to wide considerations of policy in substitution for what he distrusted, actual public administration. The community can be made to gain more by subsidies on some kinds of production than it will lose by the taxation of others, so that the direction of enterprise can be advantageously changed. This is the form in which this argument is discussed. If the subsidy were raised by a tax on income, as he says it might be, it would be a straighter proposal, but the reaction of the cost as against the advantage would be more difficult to analyse. Therefore, the main argument puts the cost of the subsidy on one kind of industry and applies it to another ; indeed, on other grounds he holds that it would be good conduct for the consumer himself to refrain as far as possible from the use of goods subject to increasing costs, in order to encourage the output of those subject to decreasing costs. The proposal to tax one sort of production in order to subsidise another opens a very wide question, and may seem at once to call for limits ; for if a Government is going to do this, the consumers' estimate of the net advantage might not be accepted as the proper test. We might be taxing coal to subsidise cosmetics. When public policy is introduced, its rightness does not always consist in giving people what they want.

If, however, we adopt consumers' surplus as the criterion, and if it substantially survives the qualifications I have mentioned above, a question arises, as Marshall perceived, about the reaction of the policy on the producers' surplus. My interpretation is, that he regards this as quite secondary to the theory. The producers' surplus is money, which is transferred within the community, but the social advantage is to be judged by the real return on the expenditure of money, to whomsoever it belongs ; it is all in the demand curves ; though there will be unsettling effects on producers.

Now, a proposal to increase welfare (as estimated by the consumer) by taxing goods which are subject to increasing cost, in order to subsidise those which are subject to decreasing cost, means generally taxing extractives in order to subsidise manufactures. Is this a paradox ? For taxation will lessen the supply of the former and increase the supply of the latter. And increased manufactures cannot be got out of diminished materials. This is, however, not quite the problem. The goods taxed or subsidised are those which *reach the* *consumer* under one or other of the conditions of cost. Then the questions are, first, if the consumer of extractives is partly a producing consumer, as in the case of coal, how is the tax to fall so as to ensure him the absolute increase he requires out of a diminished supply, in order that he may expand his manufacturing production ? Second, is the producing consumer regarded as having a consumers' surplus ? Third, when transport and selling organisation are allowed for, are there enough goods which reach the consumer subject to increasing cost to carry the weight of a really effective subsidy to the other industries ? I am prepared to find that others see this argument differently from me, because of the brevity with which Marshall has stated his principle of taxation.

The use of the fiscal instrument was the form which socialism actually took in Marshall's time. It may be called social, as distinct from industrial socialism. Except that he advocated public control of local services, and transport, it represents his socialist aspect. He returns to it in the sixth Book. In that Book, he is anxious to show that earnings in relation to service is not a feature of wages alone, and the argument on the earnings of business leaders is one of his most difficult. But, given that the system works correctly to its rules, his statement about the level of wages, which (p. 531) is almost proletarian, could hardly have avoided a critical or pessimistic conclusion about the system. Therefore, in the final chapters, he wavers between optimism and pessimism, unwilling to concede too much to pessimism because of a repeatedly expressed fear of giving ground for schemes and short cuts. So the very last page is like a question mark.

There is a sense in which many ideas may be "in" a book, but do not come out of it. Marshall used often to say lightly that " it was all in Adam Smith ", but that is not always a good thing to say about a book. There were too many things in Adam Smith, so that you could choose your quotation. A book has " in " it the ideas of which it creates a synthesis, and is only to be credited with those which are used and related in an argument. Marshall so used ideas which can be found in earlier works ; they had been perceived but, if I may use a philosophic term, not apperceived. It is the apperception which makes all the difference, and marks a new stage in the use of concepts. In different ways, both Marx and Marshall contributed this to economic thought. They created related syntheses of fundamental ideas. I do not think that Adam Smith had this faculty. Mill had a wide range of perception, Ricardo of intuition. Marshall unified and integrated the economics of enterprise ; the logical order of his book gives it a peculiar fixation. But we should no more say of him than of Adam Smith that " it is all in Marshall ". I would rather take the end of the fourth chapter of his first Book as equally true in its turn of his own sympathetic temper, enthusiasm for humanity, and caution, as he describes his predecessors ; and of his expectation that the human will will continue to find ways of modifying circumstance and character and the environment of thought.

The Effect of Population Growth on the General Level of Employment and Activity

By S. C. Tsiang

Ever since it became well known that with the present fertility rates the populations of the western countries would in the near future start to decline, economists in these countries have generally become once more population-conscious, and the economic consequences of a declining population, particularly its effect on the general level of business activity, have come to be one of the most discussed topics in our economic literature. It appears to be the accepted conclusion that the effect of the decline of population growth and, *a fortiori*, of the actual decline of population is an unfavourable one ; but a certain lack of clarity in argument which, I believe, prevails in most of the discussions on this topic, seems to justify the attempt to make further suggestions in the form of this note.

It seems to me that there can be two different ways of approaching this problem. First, there is the long-period trend analysis which deals with the implications of the trend of data, in this case, the growth of population, over a considerable period of time. In other words, it analyses the effect of the changes of the population growth on the long-run tendency of employment and activities, taking good years with bad, so as to disregard the short-run fluctuations in them.[1] Secondly, we can have a short-period dynamic approach which considers the effect on employment and activities of the changes, and the rates of changes, of the population at each successive moment of time. Since the long period is always a series of successive short periods, the most adequate way of dealing with a long period is, to be sure, to analyse each of its component short periods. However, an analysis of the long-period implication of the trend of data does provide an indication, though of necessity a crude one, of the general tendency of events, in so far as the long-period implication of the data analysed constitutes a sort of limiting factor to the actual course of events through the successive short periods.

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[1] What we term here the long-period analysis is quite different from what Mrs. Robinson calls the long-period theory of employment (Cf. J. Robinson, *Essays in the Theory of Employment*, pp. 105–138). It differs from the latter in that in our long-period analysis, stationary equilibrium is nowhere assumed to have been attained, whereas the latter deals with the state of employment under conditions of stationary equilibrium.

It is quite probable that the various writers on this topic have both of these two ways of approach in their minds when they are tackling this problem, but the failure to distinguish explicitly between them has done much to impair the logical clarity of their arguments. For example, let us take Mr. J. M. [now Lord] Keynes' article entitled "Some Economic Consequences of a Declining Population" in the *Eugenic Review* for April, 1937. There Mr. Keynes states that the demand for capital depends on three factors :

(*a*) Population, i.e., the number of consumers ;
(*b*) Standard of life, i.e., the average level of consumption ;
(*c*) Capital technique, viz., the average period of production.[1]

Then he proceeds to say, " now it is necessarily the case that an increase in population increases proportionately the demand for capital " ; (the reason for this is not stated) " and the progress of invention may be relied upon to raise the standard of life ".

Now if the rise in the standard of living is due to the application of inventions, it is difficult to see how the former will in its turn increase the demand for capital. The reason why Mr. Keynes said this is probably that he had a short-period *ex ante* analysis in mind while dealing with the long-period trend of *ex post* events. Since the product of population and the standard of life gives the level of aggregate real consumption, it is indeed a tempting step to identify it with the short-period concept, " the effective demand for consumption," and to say that any increase of it will increase proportionately the demand for capital, provided that the average period of production does not change, which is our familiar " Acceleration Principle ". Thus Mr. Keynes proceeds to give a statistical estimate of the changes of population, the standard of life, real capital formation and the period of production in England from 1860 to 1913. I reproduce his table below :

	1860	1913
Real Capital	100	270
Population	100	150
Standard of life	100	160
Period of Production ..	100	110

From this table Mr. Keynes deduces, " It follows that a stationary population with the same lengthening of the period of production would have required an increase in the stock of capital of only a little more than half of the increase which actually occurred ".[2] This is certainly true in a tautological sense, but it would be rash to conclude from this that in the period from 1860 to 1913 the increase in population has been responsible for (in the sense of having induced) a little less than half of the demand for new capital and the rise in the standard of life due to inventions for a little more than half of it. For it seems to me more reasonable to say that the fact that at the end of this half-century we find an increased population with a greatly improved standard of life is the result of the capital accumulation and technical improvements during this period. The rise in the level of aggregate real consumption can only be conceived as the cause of the actual capital accumulation in so far as it had been correctly foreseen and the increase in the capital stock was exactly the amount planned to meet this increase in consumption. This is, of course, a very improbable proposition. In fact, if the increase in real income consequent upon any investment could always be regarded as the cause of the investment that has brought it about, in the sense that the expectation of it would have induced the entrepreneurs to invest the same amount, then we would always have equilibrium in the general level of activities. The proposition that the increases in population and in the standard of life gave rise to the demand for new capital that had actually been invested is therefore probably the result of the misapplication of the short-period *ex ante* concept to the analysis of the long-period trend of *ex post* events.[1]

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[1] The term " period of production " is used by Mr. Keynes in the sense of the amount of real capital required per unit of output. It will continue to be used in this sense throughout this paper.

[2] Keynes, op. cit., p. 15.

However, in a quite different sense we can say that the increase in population did enable the vast accumulation of real capital to take place with other conditions as they actually were. If we look at the table again, we shall notice that the salient feature is that there has not been any important change in the length of the so-called period of production, in spite of the vast increase in the stock of capital. It is obvious that the classical proposition that the period of production is lengthened when the amount of real capital increases is based on the principle of non-proportional returns to capital, which holds only on the assumption that other co-operating factors and the state of technique remain constant. For if the current output increases in the same proportion as the stock of capital, the ratio of the latter to the former, viz., the period of production in our definition, cannot alter in spite of the increases in both of them. It is only when the current output increases less than proportionately to the accumulation of capital, that this ratio, i.e., the period of production, will be increased.[2] The fact that the length of the period of production has not increased considerably signifies nothing but that there has not been much fall in the productivity of capital in spite of the enormous investment during that period.[1] The obvious explanation for this is that the tendency for non-proportional returns to capital is constantly offset by technical inventions, opening of new territories and the increase in labour supply which enables the widening of capital. Thus, with the rate and the nature of inventions being what they were, the vast real capital formation would not have taken place with so little decline in the productivity of capital, had not the population and the supply of labour increased so much. Since the long-term rate of interest has always been notoriously rigid, this would imply that without the increase in population such big capital accumulation would probably not have taken place, other things being equal. Further, since there is little hope that the long-term rate will be less rigid in the future, if we expect that in the future the population will be stationary or declining and there is no special reason to expect a greater rate of technical inventions, we shall certainly find it increasingly difficult to keep up even the past rate of capital accumulation. If there is no corresponding decrease in the propensity to save, this will imply an increasing difficulty in maintaining full employment.

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[1] Professor Alvin H. Hansen, in his "Economic Progress and Declining Population Growth," published in the *American Economic Review* for March, 1939, has followed more or less the same method of analysis as employed by Mr. Keynes. However, he has cautiously avoided saying that the increase in population in the past has given rise to a proportionate increase in the demand for the stock of capital, but maintains instead that it has provided a great part of the investment outlets by increasing the labour supply. Thus his argument is more similar to our long period analysis which is going to be explained.

[2] The concept of the average period of production, even as it is defined in our simple way, is not free from difficulties. Strictly speaking, this concept is applicable only to conditions of stationary equilibrium. If capital accumulation is still going on, as has always been the case in the real world, the problem arises whether we should include the current output of capital goods in the total current final products. While avoiding going into the subtleties of capital theory, we can probably say that the current output of capital goods should be included in the total current products in our measurement of the period of production as a kind of indication of the productivity of capital. It thus becomes simply the inverse of the average productivity of capital.

This kind of approach is what I call the long-period trend analysis, which thinks in terms of the scope of investment that sets the limits for, rather than determines, the short-period course of investment activities. To complete it we shall consider whether in a declining population the propensity to save is likely to be smaller or greater than in a growing population. It is rather difficult to work out *a priori* what the effect on the propensity to save of the decline of population as such will be. On the one hand in a community with a declining population there will be fewer dependent children per family than in an expanding community. It might therefore be said that in the contracting community each member of the earning population might save more, if he does not spend all that would have been spent on children on luxuries or semi-luxuries. This tendency, however, is probably much weakened by the concentration of savings in a small class of rich people. On the other hand, if the population of the contracting community has been on the decline for some time, there will be a larger proportion of retired old people living on their pensions, past savings, deferred annuities, etc., and a higher death rate will mean more payment of death-duties " out of capital ". It is therefore quite uncertain whether on balance a declining population makes for a greater or smaller propensity to save, except in the transitional stage during which the number of children per family has started to decrease while the proportion of retired old people to actual earning population has not yet increased.

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[1] In the U.S., as pointed out by Professor Hansen in his article cited above, the period of production has increased very little, if any, during the period 1890–1922. And according to Professor Paul H. Douglas the rate of increase of output is probably in excess of the growth of real capital formation in England from 1875 to 1909, which implies that the period of production in England has probably been shortened during this period.

Statistical investigation by Mr. Colin Clark has shown that comparing the periods before and after the First World War there was a marked decline in the proportion of the annual national income of Great Britain which is saved. But although the propensity to save seems to be still following a downward trend (disturbed, of course, by cyclical fluctuations), this seems to do little more than offset the upward trend in the average real income, leaving the absolute amount of saving much the same in comparable years of the trade cycles.[1] If we take this as the probable situation in the future, the great reduction in the scope for investment due to the cessation of population growth and its eventual decline will certainly make it increasingly difficult to maintain a full employment level of activity and will call for more and more special measures either to stimulate investment or further to reduce the propensity to save.

So far we have been discussing the question in terms of the scope for investment. But it is not necessarily the case that the scope for investment (in this case, the scope for the widening of capital) will always be utilised to the full extent. As Mr. Alan R. Sweezy has pointedly asked, if an increase in population will provide an investment outlet why won't the presence of unemployed people do the same ?[2] And the stationariness or the decline of population will restrict the width of capital structure only when there is no unemployed labour. In short, the increase or decrease in the labour supply is more a limiting factor than an initiating factor for investment activities. How the change in the rate of growth of population will affect the actual course of investment and business activities cannot therefore be explained by the kind of long-period trend analysis which we employed above. For the explanation of this we must resort to the short-period dynamic method ; viz., the analysis of the dynamic influences of the population growth on the investment decisions of the entrepreneurs and on the expenditures of the consumers at each successive moment.

We shall first consider the short-period effect of the population growth on consumption and saving. We have discussed above the long-period effect of a declining population on the community's propensity to save. There I have deliberately refrained from considering the possible effect of a larger real income per head as a result of the stationariness or the decline of the population. This is partly because statistical researches, such as those undertaken by C. Clark and Simon Kuznets, have shown that, taking a fairly long period, an increase in real income per head does not seem to have much influence on the propensity to save. Another reason is that it cannot be simply taken for granted that real income per head would increase more rapidly with a stationary or declining population than with a growing population. A stationary or declining population facilitates the rise in real

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[1] Cf. C. Clark, *National Income and Outlay*, Chapter VIII.

[2] "Round Table Conference on Population Problems," *American Economic Review*, Supplement, March, 1940.

per capita income (even say at the hypothetical position of full employment appropriate to each population level) only on condition that the increase in resources which the stationariness or the decline of population makes possible does actually take place and that not less smoothly than in a rising population. Since whether this condition will be fulfilled or not depends on the very problem we are supposed to inquire into, it would be illegitimate to take it for granted at the beginning. But in dealing with short-period effect our argument must be couched in different terms ; for wide fluctuations in the aggregate level of income and in *per capita* incomes are the essence of short-period problems. Although a larger real income per head might not have the psychological effect on the desire to save of the individual consumers that a bigger proportion would be saved, yet as income per head rises during an upswing the rigidity of consumption habits in the short period may cause a lag in the consequent expansion of consumption and thus increases the community's propensity to save. In such upswing phases of the trade cycles, a rapidly growing population, by increasing so to speak the " consuming units ", will certainly have some counteracting effect on the rigidity of consumption habits and will therefore deter the marginal propensity to save from rising ; whereas a declining population will tend to aggravate this tendency. This would mean that in an expanding community saving in the *ex ante* sense is less likely to catch up with the rate of investment during the upswing of the trade cycle, thereby bringing the upward movement to an end, than in a contracting community. In other words, in a community with a declining population, recovery is more likely to come to an end before anything like a state of full employment is reached. Furthermore, during the depression an increasing population will tend to stimulate consumption, if only by necessitating larger relief and family allowances to the unemployed and the poor ; whereas in a contracting population this stimulant for consumption will be absent. Thus in an expanding community, recovery would come about more easily than in a contracting community.

Next we shall consider the influence of population growth on investment decisions. The rate of investment at any moment, apart from being affected by the changes in the technique of production, in the rate of interest and in real wages, is chiefly determined by the rate of increase in the effective demand for consumption goods. It is true that the movements of the level of aggregate effective demand, which is the result of the interplay of a great complexity of forces working upon the rate of investment and the propensity to save of the community, are not determined and cannot be explained entirely by the growth of population. It is certainly incorrect to say, as is sometimes quite inadvertently maintained by some writers on this topic, that an increase in population will increase proportionately the demands for all commodities. But there may be certain commodities and services, the *per capita* demand for which may be so inelastic that an increase in population would bring about a more or less corresponding increase in the demands for them irrespective of the level (or the movement of the level) of the aggregate effective demand ; for instance, the demands for food, for the services of certain public utilities, for housing and, to a less extent, for clothing and other essential consumption goods.[1] And the production of food and housing, according to both Mr. Keynes and Professor Hansen, happens to be among the most highly capitalised in our economy. Thus if this kind of commodities and services for which the demand *per capita* is very inelastic is of some practical importance, then in an expanding community we shall have a steady flow of investment more or less independent of the actual level of the aggregate effective demand and its rate of change.

Now it is well-known that the dependence of the investment activity on the actual level of the effective demand and still more its dependence on the rate of change of the effective demand are the most potent causes of instability in our system. A steady flow of investment more or less independent of the aggregate effective demand will therefore constitute a great stabilising force. It sets the limit below which the rate of investment and consequently the level of income will not fall back in the recession. And it also promotes an early recovery by keeping up the level of effective demand during the depression and thus causing the need for replacement of those plants and equipments which have been allowed to depreciate to be felt earlier than would otherwise have been the case. In a contracting community, this steady flow of investment will be absent, and the total investment activity will consequently be more dependent on the actual level and the rate of growth of the effective demand, making the economy more liable to fluctuations. Furthermore, since the investment that will be undertaken even in recession will now be smaller, the level of income in recession and depression will be lower and recovery will consequently be more difficult.

Moreover, with a contracting population, the level of income when it does rise during an upswing will be spent more on other goods than basic human necessities, the production of which, according to both Mr. Keynes and Professor Hansen, is likely to be, on the whole, less capital-intensive than the production of the latter. Furthermore, since the demands for luxury and semi-luxury goods are more liable to changes of tastes and fashions, the industries catering for such demands are more risky. Entrepreneurs in these lines of production will therefore expect a higher rate of profit on their investment in order to provide a relatively wider margin as premium against risk. Therefore we might expect that in a contracting community the total investment activity corresponding to a given level of effective demand and a given rate of its increase would be less than in an expanding community. This, together with the tendency that in a contracting community the propensity to save is more likely to rise, as we have explained above, will tend to make the upswing process more tardy and more likely to come to an end before full employment is reached because of the rate of investment being overtaken by the rate of saving.

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[1] This is probably more true if the consumption of these goods and services is close to the minimum standards than if the consumption is well above the minimum standards.

Finally, we shall consider how the increase of labour supply, which in our long-period analysis is found to provide one of the chief outlets for investment, fits in with our analysis of short-period business activities. Obviously, during the depression when there is already a large amount of unemployment, an increase in labour supply cannot have any direct effect on the level of activity. For modern trade unions are too strong to let the potential new entrants undercut their wage rates, and wage cuts in so far as they are more or less general may not have any significant effect on employment. However, with an expanding population once the upswing is under way the accumulated additional labour reserve during the whole low activity years and the further annual increments to it will provide ample leeway for the widening process of investment to make up. This would mean that the boom of investment activities could go much further before the jerk of shortage of labour is felt than would otherwise have been the case. Here we must note the difference between the unemployed labour force which had been previously employed and the additional potential labour reserve provided by an increasing population. For the widening process of investment due to the acceleration principle will not begin on a full scale until the unemployed labour force which had been employed at the previous high level of activity is largely re-employed, because until then there will be redundant capacities in many lines of production which make investments on extra equipments unnecessary. Thus it is easy to see how the accumulation of additional labour reserves and its annual increase due to population growth are of great importance in sustaining the boom level of activity. In a declining population where the labour supply is constantly contracting, when boom is approaching and surplus capacities are eventually disappearing, there will not be much leeway left for the full swing of the widening process of capital. Consequently, we can safely maintain that with a declining population, even if we suppose that the upswing will not be brought to a premature end by the other influences considered above, high-level activity is much more likely to be short-lived than with an expanding population on account of the limitation of labour supply.

Notes on the Economics of Loyalty

By W. Arthur Lewis

Shopping experiences in wartime have driven home to the general public how much importance shopkeepers attach to regular and loyal patronage. Drop into a shop in which one is not known, and ask for a box of matches or a bottle of sherry, and one is treated as if one has uttered some coarse joke at a lay preachers' convention. Before the war the new customer was courted ; to-day he is spat upon and spurned, as if his disloyal behaviour in flitting from firm to firm were grossly immoral.

Discourtesy to the disloyal customer is a wartime phenomenon in shops, but it was known in other sectors of the economy before the war. The desire for loyal patronage is indeed almost universal. Every business man seeks to build up that goodwill which brings the customer back again and again. The quality, design and style of an article ; its price ; the credit facilities provided ; free rest rooms ; free delivery ; advertising ; with these and many other services, real or fictitious, firms try to impress their " personality " upon their customers and secure loyal patronage. What is unusual is not the desire for loyalty, but the deliberate discrimination against those who are disloyal. The purpose of these notes is not to study the economics of goodwill in general, but to examine only those cases where, even in peacetime, there is some differentiation between the loyal and the disloyal customer, whether in price, or in other conditions of service.

This differentiation does not always meet the eye. If a firm or group of firms announces that it will give a discount to customers who undertake never to buy elsewhere, or in extreme cases will refuse to sell at all without such an undertaking, there can be no mistake. But a firm can secure a similar result without any specific demand for loyalty simply by offering quantity discounts of one shape or another, since these make it cheaper to be loyal than to spread one's purchases over many sellers. The boundary between our field of study and other ways of inducing loyalty lies in this element of price differentiation. Tasteful design, branding, advertisement and other devices help to secure loyal patronage, but do not result in the customer getting a better price from the firm if he is loyal than if he is not.

In the following pages we shall first analyse the incentives to this differentiation ; then we shall examine some cases of it ; and finally we shall enquire how the public interest is affected.

I

There are two reasons why a firm may differentiate between loyal and disloyal customers. One is that the costs of supply may be different; the other, that it may be seeking to maintain or extend a monopoly position. Take cost first. Loyalty affects it in two ways, through the economies of quantity buying, and through the economies of regularity.

As for quantity, the loyalty of a customer may reduce costs because his purchases from any one establishment are larger than they would be if he split his custom. It may be cheaper to sell to a customer who comes again and again than to sell the same quantity during the same period to a number of different customers. If the business is done on credit, only one account needs to be kept, and the cost of preliminary enquiries as to credit status is less for one than for many customers (the risk of bad debts, however, may be affected one way or the other). The customer may, on his first visit, examine all the alternative products on sale, and subsequent sales may involve much less sales effort than if the whole range had to be shown to a new customer on each occasion. In brief, there are indivisible elements in selling. Hence customers who come again and again are cheaper to serve than casual customers. There are, of course, disadvantages as well. The loyal customer may waste one's time in gossip; he may consider himself entitled to special treatment, and so on. But in many cases there will on balance be a gain. The analysis of this case is complicated because we more frequently associate the economies of quantity buying with the customer who buys a large amount at a single purchase, and recognise that such a customer may give rise to greater economies, even though disloyal on other occasions, than will a loyal customer buying in driblets. The true comparison is not between large and small purchases, but between sales of a given size to a constant clientele, and sales of the same size to an ever changing clientele.

The other saving in cost is a function of regularity. If a seller can count on the loyalty of his customers, he can plan his investment more accurately. He also shifts to others losses associated with the risk of fluctuations in demand. In a market where prices are perfectly flexible, and any seller can always dispose of the whole of his output at the market price, there is no incentive to give any special price to loyal customers. One may enter into a contract now to supply some client for the next two years at a price which is below the current market price, but will only do so if one expects months in which it will be compensatingly above the prices then ruling; the quoted price is not a loyalty price, but simply the average of current and future prices. It is in markets with a price floor that it is important to have affiliations. When prices are low, but not low enough to clear the market, that seller is fortunate who has loyal customers. When prices are high, but supplies still less than demand, it pays him, remembering the lean days that lie ahead, to reserve his supplies for those who will support him during the slump, and even to charge such persons a price below the current price.

These two elements in cost, quantity and regularity, provide an incentive to loyalty discounts wholly unconnected with monopoly power, and may emerge even in highly competitive industries. The other incentive to loyalty discounts is that they may in imperfect markets be a device for maintaining or extending monopoly power. Loyalty and innocence are twin virtues. If one is lucky enough to have customers who are prone to either virtue, one may be able to exploit them.

When a seller attempts in an imperfect market to impose exclusive patronage on a customer without offering a sufficiently attractive inducement, the issue resolves itself into a test of strength. If a seller without strong monopoly tries to impose a stipulation of loyalty without the appropriate discounts, his customers will simply leave him to buy elsewhere. He cannot use such a stipulation to *create* monopoly; he can only enforce the stipulation if he already possesses some legal or natural monopoly which compels customers to give him at least some of their patronage, and therefore enables him to penalise them if they withhold the rest. Such monopoly power may be based on a legal privilege such as a patent, copyright, a trade mark, or a licensing system, on ownership of nearly all the sources of some factor of production such as a mineral, or on membership of a combine, and we shall examine some cases in a later section.

Not always does it pay to use monopoly power to compel loyalty. Take the case where a firm has a monopoly for one of its products, but not for the others. It produces X, which is patented, and Y which is unpatented and sold by many competitors. If the purchasers of X also need some Y, it may be tempted to refuse them X unless they also buy all their Y from itself. This will be very profitable if the demand for X is so strong that it will not be much affected by the stipulation; it will not pay if X, though patented, has close substitutes. This is what the Americans call full-line forcing. In its extreme form X and Y will only be sold together. For instance, suppose that a manufacturer of motor cars secures a patent on a carburettor which reduces fuel consumption by 50 per cent. He may decide to reserve such carburettors exclusively to his own make of car, thus using the patent to push his own make; or he may allow rival manufacturers to use the carburettor on payment of a royalty. This extreme type of full-line forcing will only pay if sales of his own car expand so much as to compensate for the royalties which might have been obtained if other manufacturers were allowed the use of the carburettor.[1]

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[1] The issue sometimes presents itself to the seller in the form, "What is my product unit? Am I prepared to quote separately for every distinct operation or separable component?" For instance, a furniture firm has to decide whether it will sell only suites, or whether individual tables and chairs can be separately bought; and if it decides to sell them separately, whether to sell suites at a price which represents a discount on the aggregate price of component items. Similarly a gramophone company has to decide whether to sell the individual records of a symphony, or to sell them only in sets. In practice the component items can usually be bought

Given the necessary monopoly power, to stipulate that one's commercial customers buy exclusively one's own products may be an alternative to vertical integration. To compel a distributor to stock only one brand is, from the manufacturer's point of view, just one step short of setting up his own retail shops. It is a much safer step. The risks and costs of vertical integration are too well known to require elaboration here. Though there are cases in which it pays, it results generally in loss of the advantages of specialisation. The manufacturer ceases to be a specialist in production, and has to acquire also the techniques of wholesaling and retailing. He has not the same knowledge of local supply and demand conditions as experts in those branches of distribution. His organisation grows so large that it tends to lose flexibility. His distribution costs may be higher than would be those of independent distributors, pooling his goods with those of many other manufacturers. His range of products is usually more limited than the range stocked by the retailer; if he integrates he may have to buy complementary (even competitive) products from other manufacturers to sell with his own, and the greater the number of such products, the more his business will assume the characteristics of wholesaling and retailing, and the less will he be a specialist in production. These disadvantages of integration are avoided by exclusive dealing arrangements. The retailer is then tied to the manufacturer, but the manufacturer is not tied to the retailer. The advantages of specialisation are preserved, but the manufacturer shifts some of his risks onto the retailer. This he can do only if he has monopoly power. In its absence the retailer will not pledge loyalty unless he is given adequate compensation. Loyalty stipulations cannot be used to create a monopoly; they can only extend or maintain existing privileges.

II

So much for the incentives to differentiation between loyal and disloyal customers. We come now to examine some cases of such differentiation which were found in Great Britain before the outbreak of war. In this section we shall deal with cases where there is no stipulation of loyalty, but the discounts are such that it pays to be loyal; the next will be devoted to cases where loyalty is a specific condition for earning the discount.

All the devices belonging to this section are variations on the theme of the quantity discount—the season ticket, the return ticket, the

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separately, a discount being not infrequently offered. There are also cases where they are not sold separately. His Master's Voice sells the Schnabel recording of Beethoven's Waldstein sonata only in sets, and moreover will sell it only to customers who at the same time take the Opus. 26. The company explains this by saying that the two sonatas together make up one " volume " out of the fifteen " volumes " issued by its " Beethoven society ". But the terminology does not alter the fact that this is an ordinary case of full-line forcing. Putting all the records together may give them extra value for a few people. But there must be many who want the Schnabel Waldstein but not the Opus. 26. Full-line forcing pays only if they want the Schnabel Waldstein so badly that they will take the Opus. 26 as well, rather than buy some other artist's recording.

two-part tariff, coupon trading, all promote loyalty because the price diminishes with quantity bought.

The effectiveness of a quantity discount in promoting exclusive patronage depends in the first place on whether it is "cumulative" or "non-cumulative".[1] A discount is cumulative if the quantity to which it applies is the aggregate quantity purchased during a given period, without reference to the size of the individual purchase. It is non-cumulative if it applies only to the amount taken at a single purchase. Obviously cumulative discounts promote exclusive patronage to a greater extent than non-cumulative, as the latter are effective only when the article is not expensive to store; then it will pay the purchaser to buy a whole season's stocks from a single seller at one purchase.

The effectiveness of the discount depends also on the rapidity with which the average price falls as the quantity bought increases. There is a difference between discounts where the average price falls in jerks, and those where it falls steadily. The price will fall steadily if the discount given when purchases reach a certain size applies only to additional units taken beyond that point; it will fall in jerks if it applies to the original amount as well. If the price falls in jerks, the exclusiveness of the discounts depends on how close the jerks are to each other. Consider for instance the following terms:—

2% discount on purchases between £5 and £12
3% ,, ,, ,, over £12

If all sellers are offering these terms, a person who habitually buys £11 of the commodity gets the same discount whether he buys exclusively from one seller or buys £5 from one, and £6 from another. The discount is most effective when the upper limit of a range is less than twice the lower limit, thus:—

2% discount on purchases between £5 and £9
3% ,, ,, ,, ,, £9 ,, £17

If the price falls steadily this question does not arise. Another difference is that if the average price falls steadily there is a difference between the average price and the marginal price which will have promotional effects, similar to those of the two-part tariff.[2]

Finally, the effectiveness of a quantity discount in promoting exclusive patronage depends on the range of commodities covered by the discount. If the buyer earns his discount for each commodity separately, his incentive to complete loyalty is not as great as if the discount applied to aggregate purchases of all commodities from the same firm. A quantity discount can thus be used as a substitute for full-line forcing.

The reasons for granting the ordinary quantity discount are not difficult to understand. Some are based on economies in cost, arising whether in production, in selling, or in transport, to minimisation of risk, or to differences in elasticity of demand. This does not mean that every quantity discount can be justified on economic grounds; some are due just to custom or other arbitrary factors, a point which is well illustrated by a writer whose analysis of the discounts offered in certain trades reveals unaccountably wide variations of practice.[1]

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[1] The terminology is from that very useful and not sufficiently well-known article by W. H. Stevens, "Some Laws of Quantity Discounts," *Chicago Journal of Business*, 1929–30.

[2] I have discussed these effects in my article "The Two-Part Tariff," ECONOMICA, 1941, at p. 260, and will not repeat the discussion here.

Railway policy provides interesting examples of quantity discounts which cannot always be explained. Take the season ticket. There is an economy in issuing one ticket instead of several. The season ticket holder's extra journeys are mainly in slack periods when trains are half empty. The traveller bears the risk that he may not be able to travel, wherefore the discount on a yearly season is greater than the discount on a monthly season. Loyalty to the railway is secured, at the expense of competing motor traffic. The season ticket class as a whole is perhaps more sensitive to charges than the ordinary ticket holders, whose demand is more inelastic? The rate also tapers in the sense that the charge per mile diminishes with distance. This is because the long distance season is used less frequently than the short distance; because the elasticity of demand of the long distance ticket holder is higher, though against this must be set the fact that motor competition is more effective on the shorter journeys; and because differential costs of operating the train are somewhat lower per mile. These are understandable reasons. Yet the evidence given by the railway companies on this subject suggests much arbitrariness in fixing the exact fare.[2] And the principle of the tapering rate, though applied to seasons, is not applied to other passenger fares. The discount on monthly returns is also somewhat arbitrary. In 1926 Sir Ralph Wedgwood informed the Railway Rates Tribunal that the companies had come to the definite conclusion, based on pre-war experience, that the discount was uneconomic, and that having suspended it during the war, the railways had no intention of restoring it,[3] but in 1933 the reduction was reintroduced, at first only in the summer months, to stimulate holiday traffic, but later as a permanent measure. Since 1926 motor competition has become more intense, and the discount helps to secure loyalty on the return journey. Yet, in view of the language used in 1926, a discount of 33⅓ per cent. takes some explaining.

In analysing the economic basis of quantity discounts there is one pitfall to be avoided. The economies which justify a discount are economies in differential and not in average costs. Average prime costs may be falling for output as a whole, but this is no justification for discriminating between large and small purchases. The acceptance of a large order may enable a firm to reach a scale at which, for instance, it can buy its raw materials very cheaply, but this is no case for discrimination. If total costs are the same whether a firm handles one large order or many small ones of the same aggregate amount, there is no reason to offer quantity discounts. The fact that you can get a quantity discount on your purchases is no reason for giving a quantity discount on your sales; it is only an argument for quoting to both large and small buyers a price low enough to extend your output to the point where marginal revenue will equal marginal cost. The popular view that a large purchase deserves a special price because it "reduces overheads" has no economic foundation.

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[1] "The Relation between the Quantity Purchased and the Price per Unit," by Edward L. Thorndike, *Harvard Business Review*, Vol. XVII, pages 209 *et seq.*

[2] See *Proceedings of the Railway Rates Tribunal*, April, 1926, Questions 18,088–93, 18,107–9, 18,112, 22,052, 22,061, 22,066, 22,069–70, 22,090–101. Sir Ralph Wedgwood gave evidence as Chairman of the rates and charges committee appointed jointly by the railway companies to prepare evidence for the Tribunal, which was approving the "standard charges" to come into operation on the "appointed day" under the Railways Act, 1921.

[3] *Ibid.*, Questions 17,182–9, 17,194.

At the same time, even where there are real economies in quantity selling, a firm may nevertheless refuse to offer quantity discounts. One reason may be to avoid arguments over repeat orders; where the economy is one which justifies a non-cumulative but not a cumulative discount, repeat orders sometimes cause trouble, as the customer may expect to get as good a price for a small repeat order as he did for the original large order. Another reason may be to avoid restricting one's outlets. The offer of quantity discounts enables large middlemen customers to drive their smaller rivals out of the market, so that the supplier may find himself at the mercy of one, or a few, large customers. Or the reason may be that some customers exert pressure to prevent discounts from being allowed to rival customers who would otherwise qualify for them, as when wholesalers insist on the "classification" of customers, to prevent large retailers from receiving the same "trade" discounts as wholesalers buying similar quantities. This may also work the other way, large retailers insisting on receiving quantity discounts to the disadvantage of small retailers, where there are actually no substantial economies in quantity selling. Or the firm itself may prefer to give such discounts even in the absence of economies, because it wishes to eliminate small customers (middlemen or manufacturers), either so that its large customers may make monopoly gains in which it can share, or because it believes that restricting the number of retailers handling its product to a few "high class" firms will give its product a reputation for exclusiveness on which a monopoly price policy can be based. In the fixing of trade discounts, political strategy is often the major consideration.

Finally, a note on coupon trading. There is no need to repeat the analysis of the reasons why manufacturers use this form of sales promotion, the types of product suitable for coupon trading, its cost, or the organisational factors already discussed in an extensive literature.[1] Suffice it to note that coupons are very efficient promoters of loyal patronage because the seller must continue with the same brand until he has collected a minimum number of coupons, or the number he requires for redemption in " free gifts ". The same applies to trading stamps, which do for the retailer what the coupon does for the manufacturer, and, to a lesser extent, to cigarette cards.[1] [2]

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[1] The fullest report on the position in Great Britain is the *Report of the Committee on Gift Coupons and Trading Stamps*, Cmd. 4385, 1933; two pamphlets, *The Case for Gift Coupon Advertising*, published by the Advertising Manufacturers and Distributors Association, 1933, and *The Case against Coupon Trading*, Anon., 1933, are also useful, especially the former for its statistics not obtainable elsewhere. Useful American articles are I. M. Rubinow, "Premiums in Retail Trade," *Journal of Political Economy*, 1905, and A. R. Sommer, "Premium Advertising," ***Harvard Business Review***, Vol. X.

III

Cases in which exclusive patronage is specifically demanded as a condition for special treatment are not by any means as common as the quantity discount device. They are mostly cases where a group of firms is trying to crush competitors who have stayed outside the ring ; but there are also cases where individual monopolists have felt strong enough to use the device.

A well known case is the " tied " public house. The licensing system of Great Britain limits the sale of liquor to licensed premises, and is designed to restrict their number. Consequently the brewer is induced to buy up premises. A House of Commons Committee in 1817 reported that already half the houses in the Metropolis were controlled by brewers.[3] By 1899, according to the Royal Commission on Liquor Licensing Laws, 75 per cent. of the houses in the country were so controlled,[4] and by 1931 the figure had risen to 95 per cent.[5] Some of these brewer-owned houses are operated by salaried managers, but the majority are leased to tenants, the tenant being the licensee recognised by the law. And in every case the brewer imposes on his tenant a condition that he shall purchase beer exclusively from the lessor. In many cases he goes even further, compelling the tenant to take not only beer but also his wines, spirits and even matches and sawdust through the brewer, who supplies them usually at a price above the market rate. On the other hand, the rent charged for the house is usually below the market rate, so that it is not easy to compare the position of licensees who own their own houses with that of tied tenants. Whether the brewer can exploit the tenant depends on whether that class of person is restricted in his choice of occupation ; that he can use the tie to exploit the public is due to the licensing system preventing the building of competing houses.

Another famous case is that of the United Shoe Machinery Company. This company was formed in the United States in 1899 to buy up existing companies, and by 1910 controlled 90 per cent. of the shoe machinery industry in that country. Most of its machinery is not sold, but let out on lease to manufacturers, and in 1901 it introduced a new lease with tying clauses; any manufacturer using any of its most important machines had to pledge himself in effect not to use any machinery made by any other firm, and as the company held patents for some of the best and most advanced machinery in the industry, it was thus able to compel manufacturers to resort to it exclusively as well for other machines not covered by patents. The company duly extended its activities to the United Kingdom, where, with the help of these leases, it now controls 90 per cent. of the trade.[1] Since the Patent Act was revised in 1907, manufacturers must now have the option of free leases, but the rental on these terms is so much higher than the rental on tied terms, that the option is not of much practical value.

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[1] The history of cigarette cards and organisation of the card market are described in I. O. Evans, *Cigarette Cards.*

[2] The dividend paid by co-operative societies resembles the trading stamp, and is often called a loyalty dividend. It does not fall within our scope, however, because there being no minimum set to purchases, as with trading stamps and coupons, the customer does not pay a higher net price to the shop the less loyal he is. Some societies, but not all, do not pay dividends on non-member purchases. The authoritative study of the subject is J. A. Hough, *Dividend on Co-operative Purchases.*

[3] *Royal Commission on Liquor Licensing Laws*, 1898, Vol. IX, page 116 (Reprint of Committee's Report).

[4] Final Report, page 96.

[5] *Royal Commission on Licensing* (*England and Wales*), 1929–1931, Report, para. 295.

A third case is the use of the copyright privilege by American film renters (the wholesalers of the industry) to tie up the outlets. Until the passage of the Cinematograph Films Act in 1927, "block booking" was a common practice; a renter controlling a good film with a popular star would refuse to let an exhibitor have it unless he contracted also for others which he would not otherwise have taken. The large companies controlling chains of theatres could not be exploited in this way, but the one-cinema exhibitor is weak, and renters have kept him so by refusing to recognise exhibitor co-operatives.[2] So firm a hold did the American producers get through this device that Parliament was persuaded in 1927 to prohibit "blind booking" (i.e., the booking of films before they are trade shown), and to restrict advance booking to a period not exceeding six months, thus limiting severely the number of films which can be forced on an exhibitor at any given time. This Act (tightened up in 1937) has reduced the extent of the practice, but it still persists.

Apart from these three cases, all the other important instances of exclusive dealing arrangements are due to pressure by combinations of firms. The pattern is that of the labour market, where many trade unions have long insisted on the closed shop. Trade combinations seem to have started to follow this model after about the 1870's. The best known examples where exclusive terms are, or have once been offered, are the unsuccessful attempts of the Birmingham Alliances,[3] the Scotch Boiler Plate Association,[4] the White Lead Convention,[5] and the cotton spinners[6]; and the more successful attempts of the

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[1] Accounts of the company's activities in the United Kingdom are given in the *Report of the Departmental Committee on the position of the Engineering Trades after the War*, 1917, and the *Report of the Committee on Trusts*, 1919. The company's methods are attacked in *The Growth of a Monopoly*, a pamphlet published in 1918 by the British Boot Machinery Manufacturers' Association, and defended in Richard Roe, "The United Shoe Machinery Company," *Journal of Political Economy*, 1913–14.

[2] On this whole question see *Cinematograph Films Act*, 1927, *Report of a Committee appointed by the Board of Trade*, Cmd. 5320 of 1936.

[3] H. W. Macrosty, *The Trust Movement in British Industry*, p. 79.

[4] *Ibid.*, p. 67.

[5] P. Fitzgerald, *Industrial Combination in England*, p. 118.

[6] *Infra.*

Bradford Dyers Association,[1] the shipping conferences,[2] the National Light Castings Association,[3] the Tin Plate Conference,[4] various other groups in the iron and steel industry,[5] the Greystone Mortar Association,[6] the Midland Pipe Association,[7] the Electric Cable Makers' Association,[8] the Electric Lamp Makers' Association,[9] the Wallpaper Manufacturers,[10] and the railway companies.[11] Space forbids an analysis of each of these cases; we select only those which best illustrate the common problems.

Every trade combination, unless protected by special legislation, is subject to internal and external stresses which threaten to wreck it. The external stress is the competition of firms outside the ring; the internal stress the quarrels of members over quotas and prices. The ring is most secure from outside competition if its members own nearly all the sources of some mineral, or if the optimum technical unit is so large that only firms with large financial resources can hope to establish themselves in the industry; or if the group is protected by some legal privilege such as trade marks, patents or tariffs. If by reason of its special privilege the group can count on each of the buyers in the market having to come to it at some time or other, it can impose such heavy penalties for disloyalty that they all pledge themselves to it. But if outside the group are firms able to supply all the requirements of the market, customers are not at the mercy of the group, and there is little reason to think that the mere adoption of exclusive terms will enable a group to establish and retain a monopolistic position.

Thus in the Lancashire cotton industry attempts have been made for some years to fix and maintain prices above the competitive level, groups of firms in each section signing agreements not to sell below a given minimum price. One such agreement, signed in 1937, covered nearly 90 per cent. of the firms in the Egyptian mule spinning section, and as the position was being undermined by the outside firms, the signatories tried in November, 1938, to strengthen their position by offering a discount of 5 per cent. to all customers who undertook to patronise the group exclusively. The manœuvre failed; price net of rebate continued to exceed that of the outsiders, who accordingly lost no customers. The offer was therefore withdrawn in April, 1939.

The fate of rebates in the iron and steel industry was similar, though this was their home. They flourished in one or two specialised sections, but not in the major ones. The failure of pre-1914 rebates in steel manufacture has already been described by Burn.[1] In 1926 new associations were started in the steel section which included practically all the British steel manufacturers. The competition they had to face was that of the continental producers. In 1927 this was intensified, and in reply to it a rebate varying from 5/– per ton on steel ship plates to between 5/– and 12/6 per ton (a quantity discount) on joists and angles was granted to all buyers who signed an agreement to use only British steel. By the end of 1927 80 per cent. of British steel users had signed. To coerce the remaining 20 per cent. prices were advanced 5/– per ton in February, 1928, and the loyalty rebates simultaneously increased by 5/–; so that loyal buyers paid the same net prices as before, but others were at a disadvantage of from 10/– to 17/6 on all steel bought at home. " So long as foreign supplies were cheap and plentiful ", Messrs. Wm. Jacks & Co. comment,[2] " that did not matter." Buyers who depended mainly on British steel pledged loyalty; the others continued to get the bulk of their supplies from abroad. In 1928 and 1929 continental prices rose, and were above British steel prices, which were kept stable; this drove some buyers to sign the pledge. Then in 1930 and 1931 came the real test. British prices were maintained, but continental prices fell below them. To strengthen its hold the association increased the rebates in January, 1931; there was nevertheless much fear that the schemes would break down, and a clamour for a tariff began which was satisfied in 1932. Without this tariff, it is doubtful how much longer the rebates would have been effective. The subsequent history of rebates in the industry is interesting, because they have now been put to a new purpose. The Iron and Steel Federation was formed in 1934, and in 1937 had 27 constituent associations. Its hold over these associations being weak, it decided to use loyalty rebates to strengthen it. Each association is encouraged to give a rebate to such customers as pledge themselves (a) to purchase exclusively from firms within the Federation and (b) to belong to one of the constituent associations of the Federation. The idea is that if any firm breaks away from its own association, all other associations will come to the rescue by withholding from the offender all rebates on all his raw materials. The signal to do this, however, must come from the Federation, which is thus able to withhold support from associations whose policy it disapproves.[3]

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[1] Macrosty, p. 155; Fitzgerald, p. 20.

[2] A full account of their origins, failures and successes is in the report and evidence of the *Royal Commission on Shipping Rings*, 1906–9; there is an inferior discussion in the *Report of the Imperial Shipping Committee on the Deferred Rebate System*, 1923.

[3] Fitzgerald, p. 48.

[4] *Ibid.*, p. 44.

[5] D. L. Burn, *History of Steel Making*, p. 342, and *infra*.

[6] Fitzgerald, p. 110.

[7] *Ibid.*, p. 112.

[8] *Ibid.*, p. 122.

[9] *Ibid.*, p. 124.

[10] *Ibid.*, p. 155.

[11] See L. A. Carey, *Modern Railway Practice*, Ch. X, G. Walker, *Road and Rail*, Ch. II, and *infra*.

In shipping, the amount of capital required to start a new liner service facilitates monopoly. But even here, and despite the particularly onerous terms of the rebate, the conferences have not had it all their own way. In the days before 1914, when the industry was prosperous, many new companies broke into the conferences. The rebate system is most effective in warding off sporadic competition by tramps, but is unable to prevent all competition. Where the commodity is one for which the tramp is most suitable, or one which can be accumulated and sent by tramp, e.g., coal, rice, sugar, the deferred rebate system cannot be applied to it, and the shipper is free to patronise the tramp without forfeiting rebates on other commodities; he is also always free to charter a whole ship without forfeiting rebates though he is penalised if he sends less than a full cargo by tramp. The rebate system strengthens the hands of the conferences, but does not confer unlimited power on them.

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[1] Loc. cit., p. 342.

[2] *Annual Review of the Iron and Steel Trades in 1928*, p. 18. This account is summarised from the pages of the firm's Annual Reviews, 1927–1932.

[3] See *Import Duties Advisory Committee, Report on the Iron and Steel Industry*, 1937.

A new case of loyalty provisions is the "agreed charge" which railways are allowed to make under the Road and Rail Traffic Act of 1933. The feature of this charge is generally that if the consignor agrees to send all his traffic by rail he gets a special quotation. It is designed to meet motor competition, and the limits to its success depend on the strength of motor competition. Only a small number of consignors have entered into agreements; and in a number of cases part of their traffic is pledged, but not all, and allowance also made for the consignor to do his own delivery within a specified local range. Another special feature of these agreements is that the freight is calculated per parcel (ton, &c.) without reference to distance carried. The major incentive to this break with all railway traditions is said to be that it reduces clerical work, since the number of parcels has to be counted, but no account need be taken of classification or distance. This system has its dangers. The price quoted per parcel is less than the usual price for long distance work and greater than the price of short distance. The consignor has, therefore, an incentive to do the short distance work himself, or get other contractors to do it, but this is frustrated by requiring him to send all his traffic by railway, or at least imposing restrictions on the amount not so sent. He is now also able to compete more effectively in distant markets, so there is a progressive tendency for the average length of haul to increase, and the charge has regularly to be revised. From the social point of view the flat rate is undoubtedly uneconomic, because it causes cross-hauling. Having promoted the charge in 1933, the Ministry of Transport has had to cope since the outbreak of war with some of its anti-social results.

IV

We have written so far as if in all exclusive dealing arrangements it is the seller who is seeking to tie the buyer. This is by no means the case. The buyer in many markets has just as great an incentive to tie the seller. The quantity discount is paralleled in agriculture, where higher prices are usually paid for large quantities than for small parcels of produce. Exclusive arrangements are found in the sale of the goodwill of businesses, the training of apprentices, and the grant of exclusive agencies by manufacturers to distributors—to take only a few of the well-known examples. Buyers' combinations are exemplified in the Report of the Board of Trade Committee on Restraint of Trade, 1931, which described the pressure retail trade associations bring to bear on manufacturers to stop supplies to retailers who are cutting prices or infringing distance or other restrictions. The habits of such associations in the grocery trades, tobacco, stationery, newsagencies, motor agencies, cycle trades, and the photography trade[1] need no further description. We shall illustrate their problems from the history of a new association which has emerged since that committee reported.

The retail prices of proprietary drugs are fixed, and any chemist who undercuts them is penalised by having his supplies stopped through the machinery of the Proprietary Articles Trade Association. This association, which is adequately described elsewhere,[2] protects the chemist against price competition, but not against an increase in numbers, one of the consequences of price maintenance itself. He would like to see the number of chemist shops reduced, whether by imposing a distance limit, as in the newsagent's trade, or by tightening up qualifications. So far nothing has been done to limit the number of chemist shops, but steps have been taken to prevent competition with chemists by other retailers. The object of the " Chemists' Friends Association " is to persuade manufacturers to sell medicinal products exclusively through qualified chemists, and to stop selling through grocers, barbers, cafés and other outlets. Manufacturers who undertake to do this are enrolled in the association, on the council of which they are represented. And to ensure control over all outlets, wholesalers are included in the scheme. Where a manufacturer believes that his retailers should have special qualifications, as in the photographic trade, there is little difficulty in persuading him to join such an association. The "Chemists' Friends" has met its full quota of opposition. To coerce manufacturers, retail chemists refuse window display or other sales promotion to the products of manufacturers who refuse to join. Manufacturers of extensively advertised products are able to withstand this pressure, but the losses in the ensuing struggle are frequently severe. At the end of 1939 over 100 manufacturers had already capitulated, and the fall of other big concerns was confidently predicted.

V

Should these exclusive arrangements be tolerated ? Is it anti-social to reward the loyal customer with a special price ? The official commissions reporting *ad hoc* on specific cases have adopted no consistent view ; in shipping, the iron and steel industry and retail trade exclusive arrangements have been blessed ; in the liquor trade, the film industry, and engineering they have been condemned.

The first difficulty in answering these questions is the fact that such arrangements are not always harmful. In so far as loyal patronage secures economies, it should be encouraged, and the loyal patron rewarded. The economies are frequently exaggerated. Those who believe that after the war the housewife should have to continue to register with particular shops point out that if each butcher in the street knows every week to expect fifty customers, stocks carried and waste are smaller than if one week one butcher gets a hundred customers and the other none, and the distribution of customers from week to week is completely unforeseeable. This is true, but not very realistic. And yet in so far as loyal patronage facilitates planning, the loyal should be encouraged. There is no case for compulsory loyalty, but there is a case for a loyalty rebate where the economies are real. In such circumstances the consumer should retain his freedom to choose between loyalty and the right to change his seller for whatever reason seems good to him. If he exercises this right he must pay the full cost, in forfeiting the rebate given to loyal customers. To compel loyalty violates consumers' freedom ; provided they are prepared to pay the cost of it, this seems to be a freedom which might well be retained, as anyone who has experienced the discourtesies of shopkeepers will appreciate. Let him who wishes to be loyal get a rebate.

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[1] The Joint Council in this trade has been discontinued since the Committee reported, but its functions continue to be performed by the manufacturers' association.

[2] In the Report, and in E. T. Grether, *Resale Price Maintenance in Great Britain.*

The real point is that such rebates only become harmful in the hands of monopolists in a position to exploit them. Even in the hands of monopolists, we can only condemn the rebate if we condemn the monopoly. The commissioners who supported exclusive arrangements in shipping, iron and steel, and retail trade, did so because they believed that in those trades monopoly is more desirable than competition. Whether they were right or not, the principle is accepted that there are a few industries in which monopoly may lead to economies not realised in competition ; there exclusive arrangements are clearly desirable.

It follows that exclusive dealing ought to be prohibited, but only in the hands of monopolists, and that provision should be made for excluding desirable monopolists. In England there has been no specific legislation against it,[1] except for an ineffective provision in the Patent Act, and the courts have rather surprisingly decided that it does not violate the common law prohibition of restraint of trade.[2] In the United States, however, section 3 of the Clayton Act declares that :

> It shall be unlawful for any person . . . to lease or make a sale or contract for sale of goods . . . or fix a price charged therefor, or discount from, or rebate upon, such price, on the condition . . . that the lessee or purchaser thereof shall not use or deal in the goods . . . of a competitor or competitors of the lessor or seller, *where the effect of any such lease, sale or contract . . . may be to substantially lessen competition or tend to create a monopoly in any line of commerce.*

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[1] As a wartime measure the Prices of Goods Act forbids refusal to sell one commodity except on condition that the buyer takes simultaneously some other commodity. This is really an attack on one of the methods of evading price control.

[2] *United Shoe Machinery Co. v. Brunet* [1909], A.C. 330.

The greatest difficulty in enforcing this section has been the words in italics, as it has been left to the courts to determine the line between monopoly and competition. Courts are not competent to do this; the line must be drawn in the Act itself. A monopolist might be defined for legislative purposes as any person who has a patent, copyright, trade mark, brand, licence or other privilege protected by the law; any person whose purchases or sales amount to one-third of the total sales of the commodity in the United Kingdom; or any person acting in combination with other buyers or sellers. Any monopolist who considered it to be in the public interest that competition be suppressed in his industry should have the right to apply to the appropriate minister (say the President of the Board of Trade) for exemption from the provisions of the law, and the Minister, if satisfied that a *prima facie* case existed, should refer it to a commission for public enquiry, and act according to its report; on condition that he must lay down terms regulating the prices, profits and other circumstances of each monopolist to whom he grants exemption.[1] In this way desirable monopolies would be supervised, and the undesirable prevented from using loyalty rebates to extend their power. The Clayton Act prohibited only sellers' exclusions; prohibition of buyers' exclusions is also desirable to put an end to trade boycotts.

The other difficulty in enforcing this type of legislation is the fact that there are effective substitutes for loyalty rebates. One is the use of quantity discounts. In America the Robinson-Patman Act has dealt with this, by placing on the person granting such discounts the onus of proving that there really are corresponding economies. Another substitute is to put different commodities together and call them one commodity, thus compelling people who want x to buy y also. In *Federal Trade Commission v. Gratz et al.*,[2] the Supreme Court allowed this evasion; it would have to be forestalled by specific provision in the Act. Yet another substitute is to use a contract of agency instead of a contract of sale[3]; this means that exclusive agencies must be prohibited no less than exclusive sales and leases. The fourth substitute is not so easily dealt with. It is vertical integration. If a manufacturer is prevented from tying his retailers, he will be tempted to set up his own retail shops; vertical integration has been marked in the cinema industry since the restrictions on block booking, though, of course, other and more important factors were also at work in the same direction. To prohibit loyalty rebates without prohibiting vertical integration is to leave a gap.

The fact is that loyalty rebates are only one weapon in the hands of a would-be monopolist. A law prohibiting them is a useful part of an anti-monopoly programme, but it is only a part. There must be simultaneous revision of the patent law, provision of credit facilities for small firms, prohibition of price and quota agreements and associations, and supervision of industries where monopoly is considered desirable, whether through tribunals like the Railway Rates Tribunal, or through operation by public corporations. We cannot end or control monopoly simply by prohibiting loyalty rebates ; but if we wish to end monopoly, such legislation should be an integral part of the programme. Here in Britain we continue to laud the virtues of competitive private enterprise almost without realising the extent to which our economy has ceased to be competitive. This remains almost the only important country without legislation to keep the market free, or at least a general law to control the activities of trusts. If private groups are not to submerge the public interest, Parliament must take bold anti-trust action after the war, and now is the time to prepare its programme.

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[1] Some supervision already exists, but it is inadequate. The Comptroller of Patents has some power to redress abuses; so has the Railway Rates Tribunal; the Import Duties Advisory Committee can bring some pressure to bear on the iron and steel industry; and the Imperial Shipping Committee and the Cinematograph Films Council can give publicity to abuses in their respective industries. More adequate controls need to be established, with fuller powers, but this is not the place to discuss the subject.

[2] 253 U.S. 421 (1920).

[3] *Federal Trade Commission v. Curtis Publishing Company*, 260 U.S. 568, 574 (1923).

Valuation of Stocks and the National Income[1]

By T. Barna

The definition of the national income implicit in the recent White Paper on national income is that of the maximum amount that could have been consumed in any particular year, while maintaining the *real amount* of capital assets intact.[2] From this definition it follows that investment must be defined as the value of the increase in real assets, and that profits must be defined as current receipts less current cost of replacing real factors of production used up.[3] The current value of any increment in stocks should be added to profits or the current value of any decrement deducted.

For this purpose the Inland Revenue's definition of profits is not adequate because for income tax purposes profits include the *increment in the value* of stocks over the period. Stocks are valued either at cost or current price whichever is the lower.[4] Profits must be corrected therefore before they can be included in total national income on the definition adopted. This correction was made in the White Paper for 1938 but not for 1940 or 1941.[5] It can be shown that this correction is always necessary and not only in those years when prices are falling.

1. In order to correct assessments of profits we must know the amount of investment in stocks in real terms. For this purpose a price index of the balance-sheet value of stocks is necessary with the aid of which the estimated balance-sheet value of stocks can be reduced to real terms. For the current value of stocks we constructed a monthly index averaging, in proportion of 2 to 1, the Board of Trade wholesale index of all commodities except food and the Ministry of Labour cost of living index. Further, it was necessary to know the period of turnover of stocks in the major industrial groups. This was obtained by taking the proportion of stocks in an industrial group to the average of raw material costs and gross output.[6] For any month the price index of

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[1] I am indebted to Mr. Kaldor for various suggestions.

[2] *An Analysis of the Sources of War Finance and an Estimate of the National Income and Expenditure in 1938, 1940 and 1941.* Cmd. 6347. See especially note to item 8 of Table I, p. 17.

[3] Meade and Stone, "The construction of tables of national income, expenditure, savings and investment," *Economic Journal*, 1941, p. 219.

[4] This is the stated and generally known practice of the Inland Revenue. It should be strongly emphasised that *the estimates in this paper are directly dependent on the existence of the practice imputed to the Inland Revenue.* Instances of exceptions from this practice are known to exist, but their quantitative importance is unknown. If it should prove that such exceptions from the general practice are significant the theory put forward here and the *direction* of the corrections suggested will not be affected, but the estimated amount of these corrections, either positive or negative, is likely to be too large.

[5] See note to item 2 of Table I, Cmd. 6347, p. 16. Except 1938 "no other year is affected since this adjustment is only required in times of falling prices".

[6] The value of stocks in each industry can be estimated from samples referred to below. The average of raw material costs and gross output is from the Census of Production. Since no

the balance-sheet value of stocks in each industry was obtained by averaging current prices of stocks over the period of turnover ending in that month. In order to allow for changes in the standard of valuation when prices are falling, the current price of the last month was substituted for current price in every month during the period of turnover, if the former was lower. From these indices an index for the whole economy was obtained by averaging them, weighted with the value of stocks in each industry. Lastly, the monthly index numbers were averaged to obtain an index for December 31 of each year. This was possible because the distribution of company balance-sheet samples for business years ending between April and the following March which centre on the end of the year can be estimated.[1]

In Table I the balance-sheet value of stocks at the end of each year is reduced to 1930 prices, with the aid of the index described.[2] Investment in stocks at 1930 prices, obtained by taking the difference between two successive years in column 3, has been inflated by the average current price over the year to current value. This is investment in stocks (column 6) which should be included in *net national expenditure*. On the other hand, column 7 contains *apparent* investment in stocks being the difference in column 1 between two successive years. National income should be corrected by the difference between column 6 and column 7.

It has been assumed that real stocks at the end of 1940 were 20 per cent. less than at the end of 1939, and at the end of 1941 20 per cent. less than at the end of 1940. This reduction in the *volume* of stocks seemed to be the most reasonable one ; but it can be shown that the correction to be made in total national income is hardly changed if we made a different assumption as to reduction of stocks. The formula for correction can be written as $Q_1 (P_1 - P_2) - q (P_m - P_2)$, where Q_1 is the volume of stocks at the beginning of the year (column 3), q is the real reduction in stocks (column 4), P_1 and P_2 are balance-sheet prices at the beginning and end of the year (column 2) and P_m is annual average current price (column 5).

It may be assumed that stocks were reduced in both 1940 and 1941 by *at least* 5 per cent. but by *no more* than 35 per cent. valued at stable prices. The correction necessary in national income is then £405 – 431 mn. for 1940 and £114 – 172 mn. for 1941. Assuming that the real reduction in stocks was between the above limits the necessary correction must be within these ranges, subject to the correctness of our price index.

Census of Distribution exists, for distribution the periods of turnover in the United States were used. The wholesale and retail indices were weighted as 2 to 1 because this was found to be the proportion of stocks in manufacturing, etc., to stocks in distribution. For the whole economy the average period of turnover of stocks was under 5 months.

[1] Distribution of balance-sheet samples are to be found in App. XI, Colwyn Report. The distribution of the sample from which the value of stocks was estimated is likely to be the same.

[2] The balance-sheet value of stocks at the end of each year was estimated from samples by Colin Clark in *The National Income, 1924–31*, App. I; and *National Income and Outlay*, App. III. This was brought up to date by A. Maizels in ECONOMICA, 1941, pp. 151 *et seq.*, who estimated the correction for 1938 to be £135 mn. The samples overlap at the end of 1931 in Table I.

TABLE I

INVESTMENT IN STOCKS AND CORRECTIONS OF THE NATIONAL INCOME, 1924–41

Year	Stocks in Balance-Sheets at end of year		Value of Stocks at 1930 Prices £ mn. (3)	Investment in Stocks at 1930 Prices £ mn. (4)	Annual Average Price of Stocks 1930=100 (5)	Investment in Stocks at Current Prices £ mn. (6)	Apparent Investment in Stocks £ mn. (7)	Correction of national income £ mn. (8)
	Value £ mn. (1)	Price 1930=100 (2)						
1923	1891	130·4	1450					
1924	1938	132·3	1465	+ 15	132·5	+ 20	+ 47	− 27
1925	2018	120·9	1669	+ 204	126·5	+ 258	+ 80	+ 178
1926	1981	117·3	1689	+ 20	119·6	+ 24	− 37	+ 61
1927	1927	112·6	1711	+ 22	113·5	+ 25	− 54	+ 79
1928	1952	114·9	1699	− 12	112·2	− 13	+ 25	− 38
1929	1855	107·5	1726	+ 27	110·5	+ 30	− 97	+ 127
1930	1530	94·0	1628	− 98	100·0	− 98	− 325	+ 227
1931	{1344 1432	88·5	{1519 1618	− 109	89·4	− 97	− 186	+ 89
1932	1368	85·8	1594	− 24	86·7	− 21	− 64	+ 43
1933	1404	88·7	1583	− 11	87·6	− 10	+ 36	− 46
1934	1417	89·0	1592	+ 9	89·6	+ 8	+ 13	− 5
1935	1452	91·5	1587	− 5	90·2	− 5	+ 35	− 40
1936	1594	97·5	1635	+ 48	94·8	+46	+ 142	− 96
1937	1794	105·5	1700	+ 65	107·3	+ 70	+ 200	− 130
1938	1743	100·0	1743	+ 43	102·0	+ 44	− 51	+ 95
1939	1889	110·8	1705	− 38	103·5	− 39	+ 146	− 185
1940	(1842)	136·3	(1355)	(− 350)	131·2	(− 460)	(− 45)	(− 415)
1941	(1596)	146·9	(1085)	(− 270)	145·8	(− 395)	(− 245)	(− 150)

These corrections can be applied to estimates of the national income by Professor Bowley and by the White Paper. For this purpose Professor Bowley's definition of national income was changed to allow for changing valuation of stocks, business losses and evasion.[1]

TABLE II

THE NATIONAL INCOME, 1924–41

In million £'s

Year	Bowley	Corrected	Year	Bowley	Corrected
1924	3887	3910	1934	3713	3670
1925	3794	4020	1935	3919	3870
1926	3753	3850	1936	4151	4050
1927	3897	4010	1937	4351	4230[2]
1928	3923	3920	1938	4362	4465[2]
1929	3926	4080			
1930	3812	3990		Cmd.6347	
1931	3438	3410	1939	4595	4595[3]
1932	3327	3290	1940	5585	5210
1933	3533	3430	1941	6338	6230

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[1] *Studies in National Income, 1942.* Until 1933 Mr. Colin Clark's estimates of business losses were used which were extrapolated to 1938. Evasion which was £75 mn. in 1924 was assumed to disappear in recent years.

[2] Including National Defence Contribution.

[3] Since it was found that "writing down" of stocks was overestimated by £40 mn. in 1938, an unaccounted balance of the same amount would arise in Cmd. 6347. Table I, national expenditure being in excess of national income. Therefore it was assumed that national income has been underestimated by £40 mn. in 1938, 1940 and 1941. The definition of government income is different from Bowley's. The estimate of wage bill is considerably in excess of that of Bowley.

2. The correction of the White Paper totals has repercussions on estimates of profit on the income side and on home disinvestment in war time on the expenditure side. Profits and interest corrected for changing valuation of stocks are now the following :—

	1938	1940	1941
Profits and interest, £ mn.	1351	1165	1610
Index	*100*	*86*	*119*

It is noticeable that profits in 1940 were lower than in 1938 but this seems possible in a period of rapidly rising prices if profit margins are calculated with respect to original cost instead of replacement cost.

On the expenditure side home disinvestment had to be corrected in 1940 and 1941 since in these years home disinvestment was estimated as a residual item. On the savings side the correction due to changing valuation of stocks ought to be added to or deducted from business savings. Personal savings need also to be corrected for 1938 because in that year total investment, and therefore total saving, was independently ascertained :—

(In million £'s)	1938	1940	1941
Home investment or disinvestment ..	406	– 660	– 600
Business saving after payment of taxes and W.D.A. contributions and premiums but including provision for accrued taxes	273	– 147	63
Net personal saving including provision for accrued taxes[1]	183	595	855

Since the corrections estimated have to be applied to business savings and personal savings in all years prior to 1938 the statement of Mr. Colin Clark, that the rich dis-saved on balance since 1929, no longer holds, because it was based on his uncorrected estimate of personal savings which fell short of specific working and middle-class savings.[2] With the proper corrections the rich save or dis-save according to the phase of the trade cycle.

3. Since the " writing down " of stocks from cost to current prices must always be followed by a return to cost prices when prices start rising again, it does not matter from the point of view of long run profits whether firms change over to the current price basis when prices are falling or not. If we assume that firms always value stocks at cost, this would alter the index of balance-sheet prices from 1931 onwards only in two cases. The index becomes 107.0 for the end of 1937 and 100.9 for the end of 1938. This yields the following alternative figures :—

	1937	1938	1939
Investment in stocks	45	51	– 23
Correction of national income	– 155	102	– 169

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[1] Personal savings in 1940 and 1941 were raised by the amount of the unaccounted balance mentioned above.

[2] *National Income and Outlay*, p. 191.

It will be seen that the necessary corrections to the national income are but slightly changed, and therefore the Inland Revenue's concession that stocks are allowed to be " written down " from a cost to a current price standard influences the situation only in a few cases and then only to a small degree.

4. If we defined the national income as consumption plus the increment in the value of stocks (i.e., as the maximum that could be consumed while maintaining the *money value* of capital intact, and not its real amount) it is still necessary to correct assessed profits in so far as stocks are valued at a cost standard and not a current price standard, and the movements in the two sets of valuations are not the same. Table III shows the necessary corrections in this case. It was obtained by inflating the value of stocks at 1930 prices (Table I, column 3) to current end of year prices and then following the method of Table I.

TABLE III

Year	Current value of stocks, end of year, £ mn.	Investment in stocks, £ mn.	Correction in national income, £ mn.
1931	1453		
1932	1382	−71	−7
1933	1433	+51	+15
1934	1425	−8	−21
1935	1476	+51	+16
1936	1645	+169	+27
1937	1809	+164	−36
1938	1741	−68	−17
1939	2032	+191	+45

It will be seen that the necessary corrections on this definition of the national income are much smaller. No corrections would be necessary if prices fell continuously in successive years, so that stocks were always valued at current prices.

It has been shown that a correction in national income is always necessary not because firms change the basis of valuation of stocks from a cost to a current price standard but because costs themselves are fluctuating. This correction is the most marked if we adopt the first definition of national income, when investment is defined as the value of the increment and not as the increment of value, which is the definition of income adopted both by Colin Clark and by the new White Paper on national income.[1]

5. Mr. Clark arrived at the following formula to calculate the necessary additions to assessments[2] :—

$$Q_2 (P_m - P_2) + Q_1 (P_1 - P_m)$$

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[1] This note deals with the correction necessary when national income is measured by *adding incomes*. But it can be easily seen that the same correction has to be made if national income was measured by the *output method*. For the " net output " concept of the Census of Production resembles the income tax definition of profits, in that it measures the increase in value added by production to *original* cost and not the excess of value over current *replacement* cost.

[2] *National Income and Outlay*, App. III. I gave the formula with symbols used on p. 350 above. Q_2 stands for the volume of stocks at the end of the year.

which expresses the same calculation as the one carried out above. Mr. Clark corrects the end of year value of stocks by current prices when prices are falling and when prices are rising by the average price level over the last six months of the year. Assuming that the price index he uses is correct, and that the period of turnover of all stocks was six months, Mr. Clark obtains the correct *volumes* of stocks (Q_1 and Q_2) for his formula. But he did not obtain the correct price levels (P_1 and P_2) for the formula in periods of rising prices, since he always used current price and never cost prices.[1] This involves an error in his corrections to the national income for certain years, *e.g.*, 1934.

But Mr. Clark did not apply his formula in times of rising prices and made no correction in national income when the formula would have yielded negative results. He explicitly stated that no correction is necessary when prices are rising.[2]

It is difficult to see what Mr. Clark had in mind when he explicitly excluded corrections for years when prices were rising. It may be that he had in mind the popular concept of profits, namely current receipts less original costs as against current receipts less replacement costs, in which case the correction is only on account of a change in the basis of valuation of stocks. But this is a quantitatively much smaller correction than that given by Mr. Clark for years of *falling* prices,[3] and needs to be made in the opposite direction when prices turn upward. This correction again is not connected with *falling* prices but with a *turn* in prices. Mr. Colin Clark's formula is undoubtedly the correct one, apart from the error mentioned, only it needs to be applied irrespective of the direction of price changes.

6. Since the preceding sections were written Professor Bowley has published two notes on the problem of stocks.[4] His aim is to define and examine the problem raised by the particular definition of income adopted by Messrs. Colin Clark and Kuznets.[5] But it seems that there is an error in Professor Bowley's statement of the problem itself; if this should prove to be the case, Professor Bowley's analysis and conclusions would not provide a solution of the problem of stocks.

" A manufacturer is entitled to reckon stocks either at their cost price or at the change in their value from the beginning to the end of the year."[6] Let q_0 and q_1 denote quantities of stocks at the beginning and the end of the year, p_0q_0 and p_1q_1 denote the current value of stocks at the same dates, while p'_0q_0 and p'_1q_1 stand for the buying cost of q_0 and q_1. There are, therefore, four possible ways of representing changes in stocks in the annual accounts of the manufacturer. We can write for these possibilities

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[1] $P_1 Q_1$ should always give the balance-sheet value of stocks. This is not so when Mr. Clark corrects Q_1, assuming that stocks are valued at cost, but fails to make the same correction in P_1.

[2] The statement first appeared in *The National Income, 1924–31*. The fault in Clark's logic has been referred to in a footnote by Kuznets in " Changing inventory valuations and their effect on business savings and national income produced," *Studies in Income and Wealth*, Vol. 1, 1937. Mr. Kuznets arrives at the same formula as Colin Clark but points out the correct implications. It is applied to American data in Kuznets, *Commodity Flow and Capital Formation*, Vol. I, 1938.

[3] No doubt Mr. Kalecki had this in mind when criticising the White Paper in the *Bulletin* of the Oxford Institute of Statistics, May, 1942. But this is not the relevant point when discussing the national income on the White Paper's definition. (Vol. 4, no. 7, p. 151.)

[4] *Studies in National Income*, pp. 119–121, and ECONOMICA, 1942, pp. 233–236.

[5] Professor Bowley does not say whether he agrees with this definition of income. (For the definition see first sentence of this paper.) The defence of his method of no correction in the national income is based rather on expediency than on theoretical argument.

[6] But see note 4, p. 349 above.

$$\begin{aligned} X &= p_1q_1 - p_0q_0 \\ X' &= p_1q_1 - p'_0q_0 \\ Y &= p'_1q_1 - p_0q_0 \\ Y' &= p'_1q_1 - p'_0q_0 \end{aligned}$$

The valuation of stocks at the initial date is given for the manufacturer; it must be identical with the valuation of stocks at the closing date appearing in the accounts for the previous year. He will, therefore, have to make his choice between either of two alternatives. If stocks were valued at the initial date at current prices he can, at the end of the year, choose between X and Y; if he valued stocks at the initial date at cost prices he will be able to choose between X' and Y'. In either case he will probably choose the lower value.

Professor Bowley defines X in the way it is defined above, but there is apparently a slip in his definition of Y. Professor Bowley writes

$$Y = [\, sqp_0 + bq\,(p_0 + \tfrac{1}{2}\,r\,p_0) - qp_0\,(1 + \frac{r}{2} - mr)] - sqp_0$$

where $sq = q_0$, bq stands for the amount of stocks purchased in the year, and q for the amount of material used. It is assumed that "purchases and production are distributed uniformly through the year" and that "prices change uniformly during the year and that

$$p_1 = p_0\,(1 + r)\text{''}$$

Materials are used m years after they are purchased.

The second term of our formula for Y agrees with Professor Bowley's last term; the first term of our formula ought to agree with the expression in the square brackets of Professor Bowley's formula. For this ought to be:

The value of stocks at the end of the year valued at buying cost = the value of purchases during the year, but not consumed in the year, valued at cost = the value of purchases in the year at cost *less* consumption out of purchases at cost = stocks at the initial date at cost *plus* the value of purchases in the year at cost *less* the value of consumption in the year at cost.

The second term in the square brackets, the cost value of purchases, is written correctly. The third term, the cost value of consumption, is based on the assumption, implicit but nowhere stated, that the change of prices during the year can be linearly extrapolated for a period before the year, i.e., that during the period when the stocks existing at the initial date were purchased prices were moving in the same direction and at the same rate as during the year. This need, of course, not be true. But the main error is in the first term inside the square bracket which is supposed to value stocks at the initial date at cost, but in fact gives the current value of stocks at the initial date.[1]

As a consequence of this slip the formulæ for $X - Y$ and $Y - Z$ as given by Professor Bowley would also appear to be incorrect. Professor Bowley does not deal with the case when the choice is between X' and Y' (and does not even mention the existence of such an alternative).

The formula for Y, on Professor Bowley's assumptions, can be easily derived. Stocks at the initial date are used up in s period. In the rest of the year ($1 - s$ period) consumption is provided by purchases during the year. $1 - s$ period's consumption is provided by $\frac{1 - s}{b}$ period's purchases. Hence end-of-year stocks are due to purchases during the last $1 - \frac{1 - s}{b}$ period in the year and their value therefore is

$$p_0 q\,(b + s - 1)\left\{1 + r - \frac{r}{2b}\,(b + s - 1)\right\}$$

$$\text{Hence}\quad Y = p_1 q_1 - \tfrac{1}{2}\,r\,p_0 q_1\,\frac{q_1}{bq} - p_0 q_0$$

$$\text{and}\quad X - Y = \tfrac{1}{2}\,r\,p_0 q\,\frac{(s + b - 1)^2}{b}$$

The value of $X - Y$ is always positive (i.e. Y is preferred) when prices are rising ($r > 0$) and negative (i.e., X is preferred) when prices are falling. Professor Bowley could not reach such conclusive results because of the uncertain value which m possesses in his formula for Y. Once the necessary correction is made there is no need for the use of m in the formula or in the analysis.[2]

Going back to the other alternative:

$$X' - Y' = X - Y = p_1 q_1 - p'_1 q_1 = p_1 q_1\,(1 - \frac{p'_1}{p_1}) = p'_1 q_1 \psi$$

$$\text{where}\quad p_1 = p'_1\,(1 + \psi_1)$$

---

[1] There is, in fact, only one error in the formula and not two. For the implicit assumption on which the valuation of consumption was based is of no relevance if stocks at the initial date are valued at cost based on the *same* assumption. Assuming that the average age of stocks at the initial date is t, by force of the implicit assumption $p_0' = p_0(1 - tr)$ which if substituted for p_0 in the first term in the square bracket would give the correct formula for Y.

[2] If the substitution to correct the error suggested in the previous footnote is carried out both t and m will disappear from the formula, since by definition

$$m = st + \tfrac{1}{2}\left\{1 - \frac{(1 - s)^2}{b}\right\}$$

$$\text{Moreover } t \geq o \text{ and therefore } m \geq \tfrac{1}{2}\left\{1 - \frac{(1 - s)^2}{b}\right\}$$

Professor Bowley gives 12 sets of examples on p. 121 of *Studies in National Income* where the values of s, b and m are arbitrarily chosen. In the 3rd, 4th, 5th and 6th sets of examples the values of m chosen are below the possible lowest value compatible with the values of s and b chosen. Also, since $q_1 \geq 0$, $s + b \geq 1$. In the 1st set of Professor Bowley's examples $b + s = 1$ which implies that stocks at the end of the year run down to zero. But apart from these points there are errors in the example due to the error in the formula for Y.

Since stocks are about 1/4 to 3/4 of the annual consumption the average age of stocks is between 1/8 and 3/8 of a year. Therefore with a 10 per cent. rise in prices during the year the value of $X - Y$ (or $X' - Y'$) must be between 1.25 and 3.75 per cent. of the average value of stocks. The value of stocks is between 1/3 and 1/2 of the value of the national income and hence the difference between X and Y (or X' and Y') is about 0.4 *to* 2 *per cent.* of the national income. The statement that Y will be less than X when prices are rising (and X less when prices are falling) is not dependent on the assumption that the rate of consumption of materials and the rates of purchases are constant through the year.

Income tax assessments include in national income X or X', or Y or Y'. Instead of any one of these, we should include Z, on the definition of national income adopted, the value of increment in stocks measured at average prices during the year. On Professor Bowley's assumption

$$Z = \frac{p_0 + p_1}{2}(q_1 - q_0)$$

Hence the correction necessary in the national income can be any one of the following four :—[1]

$$Z - X = (p_0 - p_1)\frac{q_0 + q_1}{2} = -p_0 r \frac{q_0 + q_1}{2}$$

$$Z - Y = (p_0 - p_1)\frac{q_0 + q_1}{2} + p_1' q_1 \psi_1 = -p_0 r \frac{q_0 + q_1}{2} + p_1' q_1 \psi_1$$

$$Z - X' = (p_0 - p_1)\frac{q_0 + q_1}{2} - p_0' q_0 \psi_0 = -p_0 r \frac{q_0 + q_1}{2} - p_0' q_0 \psi_0$$

$$Z - Y' = (p_0 - p_1)\frac{q_0 + q_1}{2} - p_0' q_0 \psi_0 + p_1' q_1 \psi_1 = -p_0 r \frac{q_0 + q_1}{2} - p_0' q_0 \psi_0 + p_1' q_1 \psi_1$$

where $p_0 = p_0'(1 + \psi_0)$

Again in order to arrive at any conclusion it is not necessary to retain Professor Bowley's assumption that the rates of consumption and purchases are constant. With a 10 per cent. rise in prices during the year $Z - X$ will be about − 10 per cent. of the average value of stocks. The probable value of $p_1' q_1 \psi_1$ was estimated above. Since we have no knowledge of the direction of price changes before the year the probable value of $p_0' q_0 \psi_0$ must be between − 3.75 and 3.75 per cent. of the value of stocks. The values of $Z - X'$, $Z - Y$ and $Z - Y'$ must therefore lie between the following percentages of the value of stocks :—

	Minimum	Maximum
$Z - X'$:	−9	−6
$Z - Y$:	−14	−6
$Z - Y'$:	−12.5	−2.5

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[1] Professor Bowley is concerned only with the first two of these corrections.

The order of magnitude of $Z - X$ (etc.) is greater than that of $X - Y$.[1] It can be said, therefore, almost with certainty, that the national income is always overestimated when prices are rising, and underestimated when prices are falling. With a 10 per cent. change in prices the correction is between 1 *and* 7 *per cent.* of the value of the national income.

7. A note of caution should be added in respect to the calculation of Z when we remove Professor Bowley's assumption that the rates of consumption and purchases are constant. The calculation of the value of the increment in stocks is unambiguous when stocks accumulate or decumulate at an even rate; Professor Bowley's assumption implies this. In the general case, where this is not necessarily true, real changes in stocks should be valued at an average price obtained from monthly prices weighted by monthly real changes in stocks. This method, however, may lead to absurd results if real stocks over the period are alternatively rising and falling. Then, if changes in real stocks over the year cancel out so that the net change is zero, it is still possible that the formula for Z will not give zero.

But we have to define Z in this way (i.e., by calculating the net change in stocks at the average price over the period) because this is the only method of valuing stocks that is consistent with the current practice of the valuation of other items in the national income, i.e., consumption and net investment in fixed capital.

This method is free from logical ambiguity only if the various components of the national income, consumption, net investment, in fixed capital and stocks accrue at an uniform rate over the year. In fact the concept of the money national income would only be free from ambiguity if annual consumption, net investment in fixed capital and in stocks were all valued at prices ruling at a single moment, and not at the average prices over the period.

In section 1 of this paper it was implicitly assumed that stocks accrue at an even rate. If this is approximately true (and it can lead to error only if changes in the accrual of stocks are correlated with price changes) the reservation in this section can be neglected. Nor is there anything in Professor Bowley's analysis, after the corrections indicated above have been made, that can be held against the procedure adopted in this paper to calculate the correction in the national income; but Professor Bowley is certainly right in believing that with the available data any such calculation must be very approximative.

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[1] This was pointed out in section 4 above.

Professor Hayek and the Concertina-Effect

By Nicholas Kaldor

I

It was more than ten years ago that Professor Hayek first fascinated the academic world of economists by a new theory of industrial fluctuations which in theoretical conception, and perhaps even more in its practical implications, was diametrically opposed to the current trend of monetary thought. The term " fascination ", though perhaps slightly unacademic, aptly describes the effect of the *first impact* of Professor Hayek's ideas on economists trained in the Anglo-Saxon tradition (and the present writer has no wish to conceal that he was among the fascinees) to whom it suggested aspects of the nature of capitalistic production they were never taught to think of. It suggested those " deep-seated underlying maladjustments " in the structure of capitalist production, which may have been ultimately caused by, but which could not be adequately described in terms of, those purely monetary processes with which most of the then current speculation was concerned. In comparison with Professor Hayek's " triangles ", " distorted price-margins ", and unduly-elongated production periods, the prevailing concern with price-levels, and with the banks doing this or that, must have appeared facile and superficial.

This was the first impact. On second thoughts the theory was by no means so intellectually satisfying as it appeared at first. There were admitted gaps here and there in the first published account which was merely intended as rudimentary,[1] and when one attempted to fill these gaps, they became larger, instead of smaller, and new and unsuspected gaps appeared—until one was driven to the conclusion that the basic hypothesis of the theory, that scarcity of capital causes crises, must be wrong. These " second thoughts " produced a remarkable crop of critics of *Prices and Production* in the pages of English and American journals the number of which could rarely have been equalled in the economic controversies of the past. Professor Hayek himself took an active part in this controversy and some eight years later produced a new version of his theory which in many ways radically departed from, and contradicted, the first.[2] It is with this second version, and in particular with the " Ricardo effect ", around which it is built, that the present article is chiefly concerned.

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[1] *Prices and Production*, London, 1931.

[2] *Profits, Interest and Investment*, London, 1939. Also, *The Pure Theory of Capital*, Part IV, London, 1941. For a succinct account of the two versions, cf. Haberler, *Prosperity and Depression*, 3rd ed. (Geneva, 1941), pp. 48–57, and pp. 481–491.

II

Professor Hayek in 1931 and 1939

In order to enable readers who are not well versed in the literature of the subject to understand what the issues are, it will be necessary to begin by recapitulating briefly, and without entering into criticisms, the main features of the two versions of Professor Hayek's theory.

The first version is mainly concerned with the effect of monetary credit expansion on the structure of production via its effect on interest rates. The banking system, owing to the elasticity of credit, keeps the rate of interest unduly low (i.e., it either actually reduces it, or prevents it from rising as it should) and thereby encourages entrepreneurs to embark on capital investments in excess of those for which current savings are available. This takes the form of entrepreneurs adopting more capitalistic methods of production (i.e., methods using more capital per unit of output) which are profitable only so long as interest rates remain at their artificially low level. But since this involves a cumulative inflation (a progressive rate of increase of the volume of bank credit) it must be brought to a halt sooner or later; when it is, interest rates rise and the longer processes become unprofitable; while the return to shorter processes involves a painful process of readjustment, during which some of the resources become unemployable.[1]

In the second version, Professor Hayek concentrates on the effect of a rise in the demand for consumers' goods (brought about by an expansion of credit, or some other cause) and the consequent rise in the rates of profits earned in the consumers' goods industries. He explicitly assumes, for the purposes of the argument, interest rates and also rates of money wages to remain unchanged during the whole cycle, and the existence of unemployment in both the consumers' goods and capital goods trades. As the demand for consumers' goods increases, the *prices* of consumers' goods increase (owing to short-period diminishing returns in these industries) and *real wages* (i.e., wages in terms of product-prices) fall. This has two consequences. One is that there will be an increase in investment demand in order to increase output capacity (there will be " widening "). The other is that owing to the fall in real wages, *less* capitalistic methods of production will be adopted (there will be " enshallowing "), so that the amount of capital required per unit of output capacity will be reduced. (It is this latter which is called the " Ricardo effect.") In Professor Hayek's view, this second tendency must, ultimately if not immediately, overshadow the effects of the first and bring about a fall in the *total* demand for loanable funds, and hence spell depression in the capital goods industries. This, he believes, must be the case, because so long as investment rises the rate of profit will continue to rise, and the more the rate of profit rises, the stronger will be the second tendency as compared with the first. " So long as investment continues to increase, the discrepancy between prices and costs of consumers' goods must become progressively larger till the rise in the rate of profit becomes strong enough to make the tendency change to less durable and expensive types of machinery dominant over the tendency to provide capacity for a larger output. Or, in other words, in the end the " acceleration principle of derived demand " becomes inverted into a ' deceleration principle '—and the classical maxims that a scarcity of capital means a scarcity of consumers' goods, and that demand for commodities (=consumers' goods) is not demand for labour assert their fundamental truth ".[1] Moreover, there is no question of an investment boom coming to an end in any other way except the one described (such as, e.g., through a *fall* in the rate of profit). " Once the cumulative process has been entered upon the end must always come through a *rise* in profits in the late stages and can *never come* from a fall in profits or an exhaustion of investment opportunities."[2]

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[1] " The situation would be similar to that of a people of an isolated island, if, after having partially constructed an enormous machine which was to provide them with all necessities, they found out that they had exhausted all their savings and available free capital before the new machine could turn out its product. They would then have no choice but to abandon temporarily the work on the new process and to devote all their labour to producing their daily food without any capital. Only after they had put themselves in a position in which new supplies of food were available could they proceed to attempt to get the new machinery into operation. In the actual world, however, where the accumulation of capital has permitted a growth of population far beyond the number which could find employment without capital, *as a general rule the single workman will not be able to produce enough for a living without the help of capital, and he may, therefore, temporarily become unemployable.*" (*Prices and Production*, 1st ed., p. 84.) (Italics mine).

It is clear from this brief summary that Professor Hayek's new version radically differs both from his own earlier theory and also from all other current theories on the subject. Most writers on capital theory and trade cycle theory (in fact *all* of those known to the present writer, with the exception of Professor Hayek) regard the level of investment demand as a function of the relation between profits and interest rates, in such a way that the *higher* is the rate of profit relatively to the rate of interest, the *greater* will be the demand for investment, and *vice versa*. They differ only as regards the causes which narrow the gap between profits and interest, and thus cause a fall in investment. One school, the under-consumptionists, believe that the gap narrows through the gradual fall in the rate of profit, brought about through the accumulation of real capital. The other school, the over-consumptionists, believe that the gap is narrowed through the inevitable rise in interest rates relative to the rates of profit which comes about when credit expansion is brought to an end. One believes that the fundamental trouble is that savings are too large, the other that they are too small. But both agree that it is the *relation* between profits and interest which determines how large the level of investment, and of industrial activity in general, is going to be. Professor Hayek, in his earlier days, himself belonged to the "other school". It was the basic tenet of *Prices and Production* that the level of investments depends on the height of profits relative to the height of interest.[1] If he now succeeded in overthrowing this principle, its ramifications would be far wider than the theory of the trade cycle. Few branches of economic theory would escape unscathed this "more than Jevonian" revolution.

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[1] *Profits, Interest and Investment*, p. 33.

[2] *Ibid.*, p. 56. (Italics mine.)

The rise in the rate of profit taking up the role of the rise in the rate of interest is not, of course, the only difference in the two versions of Professor Hayek's theory. The earlier concern with methods of production becoming unduly "roundabout" is now replaced with the opposite fear that they become unduly "direct". This shift is not merely in the nature of a correction in *sign*, a minus replacing a plus, as sometimes happens in mathematical calculations, as a result of the detection of an error in one of the equations. The whole character of the phenomenon has changed. In *Prices and Production*, as we have seen, the trouble was that during the boom the capitalist system engaged in the building of superior capital goods, for the completion of which the available resources were insufficient. It was likened to the case of the islanders who had to abandon the construction of an enormous machine because they ran out of food before the machine was ready to produce it. There is nothing similar to this in the *Profits, Interest and Investment* version. When the demand for their products goes up, entrepreneurs make higher profits. They then discover that by turning over their capital more quickly they can make still higher profits. They therefore proceed to do so, and this ultimately involves a fall in investment. If they had curbed their greed, and contented themselves with the profits they could get on the usual methods, or if this choice of still-higher-profits through the use of "inferior machinery" had not been open to them, then, as far as Professor Hayek's present analysis goes, the boom would have been made permanent: high profits, high investment, high employment, could have gone on indefinitely. Thus, on this theory, a 100 per cent. excess profits tax is sufficient to eliminate the trade cycle and stabilise prosperity. For it would suspend the operation of the "Ricardo effect"—there would be no point in trying to make profits still higher by making production less roundabout, if none of these profits could be retained.

There are two important respects, however, in which Professor Hayek's new theory is faithful to the old. One is the fundamental importance he still attaches, in the explanation of the trade cycle, to what may be termed the "concertina-effect": to the production periods becoming alternatively longer and shorter, in the successive phases of the cycle. In the first version they become unduly long during the boom and had to be shortened in the depression; in the new version they become progressively shorter as the boom progresses, and gradually lengthen as real wages rise with the fall in employment. But in both cases it is these variations in the *technique* of production, rather than the changes in the total stock of capital, and in total output of consumption goods, which are causally significant. The other respect in which Professor Hayek remained faithful to his original doctrine is in regarding excessive consumption, and not a deficiency of consumption, as the sole cause of the breakdown of a high level of prosperity. In the first version, this excessive consumption, via a process of cumulative inflation, forced interest rates to rise and the more capitalistic processes to be abandoned. In the new version, the rise in consumption caused product prices to rise relative to wages and thus to set in motion the fateful train of consequences of the " Ricardo effect ". In both cases, it is because the level of consumption rises too much, and not because it does not rise fast enough, that periods of relatively high activity come to an end.

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[1] By no means all writers who believe in this doctrine subscribe to the "acceleration principle of derived demand". The two propositions are not identical. The accelerationists assert not only that a rise in profits raises investment demand, but that the magnitude of the rise depends on the *rate of change* of profits. This latter proposition seems to be invalid; but this is a matter that cannot be gone into here.

In my view, the "concertina-effect" as a phenomenon of the trade cycle is non-existent or insignificant, while the supposition that a scarcity of savings causes booms to collapse is fallacious. The first is one of those blind alleys of economic speculation which appear very suggestive for a time, but whose significance evaporates as soon as one tries to fit the theoretical conclusions more closely to the observed phenomena. The second, I am now convinced, must be altogether abandoned as a supposition before any reasonably consistent explanation of the trade cycle can be reached.

Our present task, however, is not to suggest alternative explanations of the trade cycle but to show why the particular explanation offered by Professor Hayek is wrong. This, in its new version, all centres around the supposed operation of the " Ricardo effect ", and it is therefore to this question that the remaining parts of this paper must be largely devoted. It will be a " roundabout " and arduous journey; and the only apology I can offer in asking the reader to undertake it is that apart from the more specialised task of unravelling particular errors in Professor Hayek's argument, it may also clear up some obscure points of capital theory.

In the following sections we shall attempt to prove (1) that the operation of the " Ricardo effect " presupposes certain special conditions as to the position of individual firms which are clearly inapplicable to the major field of modern industry; (2) that even in those cases where the " effect " does operate, its quantitative importance must be small, and is not likely to exceed the equivalent effect of a small change in the interest rate; (3) that quite apart from (1) and (2), the operation of this "Ricardo effect" is wholly irrelevant to Professor Hayek's central thesis—i.e., that a rise in the demand for consumers' goods will lead to a fall in the demand for capital goods—since *under no circumstances* can total investment demand become smaller in consequence of a rise in the rate of profit.

III

RICARDO AND THE "RICARDO EFFECT"

Before, however, we can enter into the substance of his argument, it is necessary to clear up a matter of "Dogmengeschichte"; the relation of Ricardo to what Professor Hayek calls the "Ricardo effect". Since Professor Hayek so generously acclaims Ricardo as the true originator of his theorem, it is necessary to make it clear that the proposition of Ricardo and that attributed to him by Professor Hayek are not the same—the assumptions are different, the mode of operation is different, and the conditions of validity are quite different—so that any criticism made against Professor Hayek's "Ricardo effect" would not necessarily apply to Ricardo. This should be apparent as soon as one compares the passage in Ricardo's *Principles* to which Professor Hayek refers[1] with Professor Hayek's exposition of it.[2]

What is Ricardo's argument? He supposes a case where a machine costing £5,000 can do the work of one hundred men, whose wages also cost £5,000. Initially, therefore, the manufacturer would be indifferent between employing the men or buying the machine instead. "But suppose labour to rise, and consequently the wages of one hundred men for a year to amount to £5,500, it is obvious that the manufacturer would now no longer hesitate; it would be for his interest to buy the machine and get his work done for £5,000. But will not the machine rise in price, will not that also be worth £5,500 in consequence of the rise in labour? It would rise in price if there were no stock employed on its construction, and no profits to be paid to the maker of it. If, for example, the machine were the produce of . . . one hundred men, working one year upon it, with wages of £50 each, and its price were consequently £5,000; should those wages rise to £55, its price would be £5,500, but this cannot be the case; less than one hundred men are employed or it could not be sold for £5,000, for out of the £5,000 must be paid the profits of stock which employed the men. . . . *If therefore the maker of the machine should raise the price of it in consequence of a rise of wages, an unusual quantity of*

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[1] Chapter I, Sect. V, pp. 26–28 (McCulloch ed.). This is the only passage known to me where the principle is expounded, apart from a brief reference to it in Ch. XXXI (p. 241).

[2] *Profit, Interest and Investment*, pp. 8–10. The argument is reproduced in an article entitled "The Ricardo Effect", ECONOMICA, May, 1942, pp. 129–134.

capital would be employed in the construction of such machines[1] *till their price afforded only the common rate of profits.* We see then that machines would not rise in price, in consequence of a rise of wages."[2]

It is perfectly clear from the above that Ricardo's argument depends on (*a*) machines *falling* in price relatively to labour; (*b*) the rate of profit in different industries being kept at equality through competition, so that, when there is a general fall in the rate of profit, there must ensue a relative fall in the price of machines, otherwise this equality in the rates of profit earned in different industries cannot be maintained. If Ricardo had dealt with Professor Hayek's case (a rise in product prices, instead of a rise in wages), his argument would have run as follows: When the prices of the products of the machine-using industries rise, there will be a rise in the rate of profit in these industries, but not in the machine-making industries. Therefore capital will flow from the latter to the former, the output of machines will be reduced and their prices rise. With the rise in machine prices the rate of profit in the two industries will be gradually restored to equality. As the price of the machines rises, in consequence of the reduction in their output, the machine-using industries will be tempted to substitute labour for machinery.

It is clear that Ricardo's argument (as distinct from the " Ricardo effect ") is really exactly the same as the familiar " Austrian " proposition that when the rate of interest rises, the costs of production, and hence the prices, of goods containing more capital will rise relatively to those containing less capital, and this will cause a substitution of the latter for the former, all along the line.[3] For a general fall in wages, for Ricardo and the classics generally, meant a rise in the general rate of profit, while the general rate of profit and the rate of interest were regarded as the same thing: the supply price of capital for any one industry was simply the rate of profit earned in other industries. This assumed, of course, that the rate of interest on money loans is entirely governed by the rate of profit ruling in industry generally.

Professor Hayek, in his *Prices and Production* days, has subscribed, of course, to this " Austrian " proposition. He was, moreover, aware also that, in so far as the rate of interest is *not* governed by the rate of profit, it is the rate of interest, and not the rate of profit, which determines what the relative prices of goods of differing " roundaboutness " were going to be. For if the rate of interest is held constant, then (keeping to our example) the capital employed in the machine-making industry, and hence the output of machines, will

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[1] This is one of those Ricardian passages which are difficult through excessive brevity. The passage means, in modern terminology: " an unusual amount of profit would be earned in the making of these machines, and therefore additional capital would enter the industry, expand production, and drive the price down, etc."

[2] P. 26–27. (Italics mine.)

[3] This interpretation is reinforced (if further proof were needed) by a subsequent sentence, pp. 27–28.

not be reduced, and the supply price of machines to the consumption industries will *not* rise, however much the profits of the consumption industries might increase,[1] and tendency towards substitution of less capitalistic methods will not arise. Indeed, it was one of the main contentions of *Prices and Production* that so long as the rate of interest does not rise, the use of the " more capitalistic processes " will continue.

And what is Professor Hayek's present argument ? He does *not* assume any change in the relative prices of labour and machinery, or any change in the rate of interest, or any necessary tendency for equality in the rates of profit earned in different industries.[2] The substitution of labour for machinery, consequent upon the rise of product prices (all other prices, and the rate of interest, remaining the same) will be independent of all this and will come about because (*a*) producers will adopt that method of production which maximises the rate of profit per unit of capital ; (*b*) the relation between the rates of profit earned on investments of differing degrees of roundaboutness will be altered by the change in product prices. This second proposition might be illustrated in terms of Ricardo's own example. Let us suppose that the labour is invested for one year, while the machine lasts for ever,[3] so that the investment period of the machine is infinite. Let us suppose, further, that the rate of profit is initially 10 per cent., both on labour and on machinery, which implies that the value of the product of the 100 labourers costing £5,000 will be £5,500, while the value of the annual product of the machine, also costing £5,000, will be £500. Let us suppose that product prices rise by 10 per cent. Then the value of the annual product will rise to £6,050 and £550, respectively, which implies that the rate of profit on labour will rise to 21 per cent., but the rate of profit on machinery only to 11 per cent. If the rate of profit per unit of capital were the governing consideration (and Professor Hayek assumes that this is always the case, without any further examination), then clearly it would " pay " to replace machinery by labour, *independently* of any change in the relative prices of labour and machinery (whereas, as we have seen, Ricardo's argument entirely depends on this change in relative prices of machinery and labour).

Now, whatever the truth in this latter argument (and we shall consider this question at some length below), it is certainly not

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[1] Because (*a*) it is the relation between the profits earned in an industry and the rate of interest (*i.e.*, the relation between the demand price and the supply price of capital) and not the profits earned elsewhere, which determines the scale of investment in that industry ; (*b*) and quite apart from this, because the profits in the machine-making industries will not fall, relatively to the profits in the consumption of goods industries, except under conditions implicit in Ricardo, but not in Professor Hayek's theory, that the total demand for the products of both industries must be constant.

[2] He explicitly states in a footnote (*Profits, Interest and Investment*, p. 14) that he does not intend to say that the rise in the rates of profit will be uniform in the different industries.

[3] This is an extreme case, chosen for the sake of simplicity. This simplification does not affect the principle in question though it maximises the numerical effect on relative profit rates of the change in product prices.

Ricardo's. The term "Ricardo effect" is clearly a misnomer. The real author of Professor Hayek's proposition, as we shall see below, is Knut Wicksell. I should not like to rechristen it the "Wicksell effect", however, for I doubt if Wicksell would have shared Professor Hayek's views as to the manner of its operation.

Before, however, we can come to Wicksell, we must examine how the capital intensity of investments is in fact determined.

IV

THE RATE OF INTEREST AND THE "MARGINAL PRODUCTIVITY OF WAITING"

It was, I believe, first demonstrated by Jevons that the optimum amount of capital employed in production (the amount of capital which minimises the cost of producing any given output) is the one which makes the rate of interest equal to the "marginal productivity of waiting" where the latter is defined as "the rate of increase in the produce [of a given amount of labour] divided by the whole produce".[1] [2] Since this "marginal productivity of waiting" is entirely independent of the level of wages—for only the *produce* of labour and not the *cost* of labour figures in this expression—changes in the level of wages, relative to product prices, cannot affect the optimum amount of capital to be used per unit of output. The latter depends therefore solely on the cost of capital, i.e., the rate of interest.

Now Jevons' formula measures the amount of capital per unit of labour (or per unit of output) in terms of the "investment period"[3]—a concept that has been rightly criticised, on numerous grounds. Fortunately, as I have shown elsewhere,[4] the marginal productivity of capital[5] can be defined in a way that is free from the difficulties inherent in the investment-period approach. It is simply the saving in annual cost, per unit of output, brought about by the employment of additional capital, divided by the initial cost of the additional capital.[1] (This expression is also independent of the relation of wages to output prices, since only the cost of labour figures in the expression, and not the produce of labour.)

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[1] Since the meaning of this formula still presents difficulties to many people, it may be elucidated by a simple numerical example. Suppose that the produce of 100 labourers is £5,000, when invested for 1 year, £6,000, when invested for two years, £6,600, when invested for three years, and £6,930 when invested for four years. Then the "marginal product" of two-year investment, as compared with one year, will be $\frac{£1{,}000}{£5{,}000}$, or 20 per cent., that of three-year investment $\frac{£600}{£6{,}000}$, or 10 per cent., that of four years $\frac{£330}{£6{,}600}$, or 5 per cent. If the rate of interest is below 5 per cent., four years' investment will be most profitable; if it is between 5 and 10 per cent., investment for three years, and so on.

It is clear that these marginal products are entirely independent of the wages of the labourers, since both the numerator and denominator of the expression refer to the *produce* of labour, and not the cost of labour.

[2] If less capital is employed, profits can be increased by employing more (since the additional cost will be less than the additional gain) and *vice versa*. "Every trade will employ capital up to the point at which it just yields the current interest. If any manufacturer or trader employs so much capital in supporting a certain amount of labour that the return is less than in other trades, he will lose; for he might have obtained the current rate by lending it to other traders." (Jevons, *Theory of Political Economy*, 4th ed., p. 244.)

[3] Professor Hayek now calls it the "turnover period".

[4] Cf. *Econometrica*, 1937, p. 213. ECONOMICA, 1939, p. 43.

[5] In an earlier article (ECONOMICA, 1939, p. 50) I called this "the marginal productivity of capital intensification", to distinguish it from Keynes' "marginal efficiency of capital" (of which more later). The "marginal productivity of waiting", which has the merit that it is unambiguous, has other unfortunate connotations.

Thus, in the case of the example we have adopted from Ricardo,[2] the Jevonian formula would be useless; for the change in the investment period involved when labour is replaced by machinery which lasts for ever[3] cannot be calculated. Yet the marginal productivity of the additional capital required when the labour is replaced by the machinery can be easily determined. Since the annual product of 100 men is £5,500, while that of a machine is £500, it requires 11 machines to produce the same output as 100 men. The additional capital required is therefore £55,000 — 5,000 = £50,000. The saving in annual cost is £5,000 (the annual wages of the 100 men), therefore the marginal productivity $\frac{5{,}000}{50{,}000} = 10$ per cent. So long as the relative prices of labour and machinery remain unchanged, this expression remains the same, whatever happens to the price of the output; and so long as the cost of capital is less than 10 per cent. it will be more profitable to employ machinery than to use labour. Thus, assuming a rate of interest of 9 per cent., the profits on producing the output by labour will be £50 per annum, while the profits on producing the same output by machinery will be £550. If the price of the product rises by 10 per cent., the profits will be £600 and £1,100. If it falls by 10 per cent., they will be — £500 and zero. If we assume a rate of interest of 10 per cent., the profits on the two methods will be equal in all cases. At a rate of interest of 11 per cent. the employment of labour will yield a higher profit, irrespective of the price of the product. Clearly, the choice of methods depends on the rate of interest and nothing else.

What is wrong then with the argument reproduced above,[4] which purports to establish the opposite conclusion, by showing that the *rate* of profit on capital moves differently, with a change in product prices, in the two cases? In that example, the amount of *capital invested* was taken to be the same in the two cases (£5,000 in each case), while the output produced was very different (£5,500 and £500 per annum). This argument therefore proves nothing as to what is the optimum method of producing a given output, while for a competitive industry, or for an entrepreneur who can vary the amount of capital employed in his business by borrowing or lending (and this is clearly involved when we talk about a " rate of interest ") the relevant consideration is not the maximum profit on a given sum of capital, but the maximum profit on a given rate of output. When the price of the product rises (or strictly : the *expected* price of the product rises) it becomes profitable to increase output, and to extend output-capacity, until the expected price, or the marginal revenue, is back again to conformity with cost. As Ricardo said, " an unusual quantity of capital would be employed till their price afforded only the common rate of profits ". Or, as Lord Keynes would say, until the marginal efficiency of capital is again equal to the rate of interest. There will be *more* output and *more* capital employed, but not *less* capital per unit of output.

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[1] This formula will yield identical results with Jevons' in those particular cases where the "investment period", and the lengthening of it which is involved in any particular change, can be determined. As a formula, it is really older than Jevons and the whole time-period theory of capital, as it comes to the same as Mountifort Longfield's definition of the marginal productivity of capital: "the labour saving efficiency of the least efficient machinery in use." (*Lectures on Political Economy*, Dublin, 1834, pp. 187–188.)

[2] P. 366 above.

[3] It was assumed that labour, which is invested for one year, works without the cooperation of machinery; and machinery without the cooperation of labour.

[4] P. 366.

In *Profits, Interest and Investment*, Professor Hayek asserts that the rise of the rate of profit, due to the rise in product prices, will reduce capital intensity, even if the rate of interest is constant. The passage where he attempts to prove that it is so deserves to be quoted at length[1] :—" But, it might be objected, must not the rate of profit always become equal to the rate of interest, which we have assumed to remain constant ? That is, will not production always be expanded to the point where the marginal rate of profit is equal to the rate of interest ? Now this is probably quite true of the *marginal* rate of profit ; but this in no way constitutes an objection to our argument. What we are concerned with are not marginal rates of profit but the *rates of profit on any given output*, and with any given method of production (or the profit schedules or profit curve for all possible outputs and all the various methods of production) ; and the *main point is exactly* that the only way to make the marginal rate of profit equal to any given rate of interest if real wages have fallen is to use a larger proportion of labour and a smaller proportion of capital. . . . If, by keeping the rate of interest at the initial low figure, marginal profits are also kept low, this will only have the effect of a reduction in cost, that is, it will raise the figure at which the supply of and the demand for capital will be equal ; but *it will not affect the tendency to produce that output with comparatively less capital, a tendency which is caused, not by any change in the rate of interest, but by the shift in the position of the profit schedule* ".

The fallacy here is in the sentence beginning " the main point is exactly ". The main point is exactly the opposite. When the rate of interest is given, the marginal rate of profit can only be brought to equality with the rate of interest by extending output capacity until " marginal real wages " are raised to the previous level—until, that is to say, the previous cost-price relationship is restored as regards the marginal unit of planned output.[2] When the rate of interest is given, the rise in the demand for the product will only involve " widening ".[1] [2]

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[1] P. 15. (Italics mine, except the word " marginal ".)

[2] Although the *average* rates of profit can, of course, remain higher in the new equilibrium.

If the increased demand for capital, resulting from the extension of capacity, causes a rise in the rate of interest, then, and only then, will there be a tendency for the capital intensity of new investments (of fresh extensions of capacity) to be reduced ; and *the strength of the tendency will depend on the magnitude of the change in interest* (on the elasticity of supply of capital) and not on the magnitude of the change in product prices, which indirectly caused it.

In his most recent article, Professor Hayek appears to have conceded this, since he says at one place[3] that it is a " truism which we have emphasised from the beginning that, so long as the rate of interest remains constant, a change in real wages cannot alter the relative costs of different methods of production ". (It is a little surprising that he should now call this proposition a " truism ", considering that he so strongly asserted the opposite in his previous essay !) Before, however, we can deal with Professor Hayek's latest views on this question, we must make another *détour*, and examine how Wicksell came to advocate the views which Professor Hayek attributes to Ricardo.

V

Wicksell's Difficulty and His Way Out

Ricardo, and the classical economists generally, did not bother much about the implications of the assumption of competition which they made the basis for their theories. The meaning of " perfect " and " imperfect " competition was unknown to them[4] ; they did not realise that particular conditions must be satisfied as regards the position of any particular individual in the market, in order that the competitive mechanism should work in the way they assumed it works—in order that prices should be governed by marginal costs, that the rate of profit in industry should be equal to the rate of interest on loans, etc. It was only with the emergence of the " mathematical school ", after the path-breaking work of Cournot and Walras, that economists familiar with the mathematical method realised the existence of these conditions,[5] and explicitly introduced the assumption of the general rule of " perfect competition " : that any individual, whether in his capacity as producer or consumer, is confronted with given prices in the markets (since he is such a small fraction of any market that he cannot individually influence price formation in any way), which it is now fashionable to express by saying that he is confronted with " infinitely elastic " demand and supply curves.

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[1] I have analysed this problem more fully in " Capital Intensity and the Trade Cycle," Economica, 1939, pp. 48–57.

[2] Professor Haberler, who otherwise maintains a healthy scepticism about Professor Hayek's new theories, is himself misled by Professor Hayek on this point. Cf. his attempted refutation of Mr. T. Wilson, *loc. cit.*, p. 485, footnote 2.

[3] Economica, May, 1942, p. 145.

[4] With the exception, perhaps, of J. S. Mill.

[5] Menger and the succeeding Austrians, who were not trained in the mathematical school (with the exception of Auspitz and Lieben) never did realise it.

As soon as this assumption was explicitly made, however, a new problem emerged in the theory of production : the problem of how the scale of operations of the individual producing unit is determined. The output of an *industry* is determined by the conditions of supply and demand ruling in the market ; but the division of the output among the individual firms (and it is necessary that this output should be divided among a large number of firms, otherwise the industry's output cannot be determined either from the conditions of supply and demand) is not so determined ; on the contrary, since the unit, by hypothesis, can buy and sell anything in unlimited quantities, and since there are " constant returns to scale "—" small scale and large scale production must be equally profitable ", an assumption which was also a prerequisite of a state of perfect competition, and of the theory of distribution as well[1]—it was apparently not determined by anything at all. Yet it was necessary that there should be some factor limiting the size of operations of the individual firm, otherwise the state of perfect competition could not be stable.

The most eminent of the late nineteenth century economists, Marshall and Wicksell, both realised the existence of this problem, but instead of drawing the obvious conclusion (the abandonment of their general view as to the working of competition) they dealt with it in two characteristically different ways. Marshall's solution was the elevation of " organisation " or " entrepreneurship " to the status of a separate factor of production, on equal footing with land, labour and capital, but with the peculiarity that it cannot be hired in the market, so that each firm can only possess a certain amount of it, which in turn fixes an " optimum size " to the firm's scale of operation, owing to the diminishing returns which arise when entrepreneurs are overworked. I analysed the difficulties inherent in the Marshallian solution some years ago[2] and have little to add to it. Wicksell adopted a different solution. He assumed, purely as an analytical device, that the owner of one of the factors required in production becomes " entrepreneur " and hires the other factors ; but that *each entrepreneur is only allowed to hire factors dissimilar to his own, and not factors of the same type which he himself owns.* Thus, if the labourers are entrepreneurs they are only allowed to hire land and capital, but *not* labour. If the landowners are entrepreneurs they are not allowed to hire land, and so on. On this assumption each entrepreneur can only produce a limited output, the limit being given by the amount of that factor which he owns himself.[1] Since he restricted himself to describing the conditions of stationary equilibrium under perfect competition it did not matter which factor was " entrepreneurial "—the earnings of the factors, and their allocation between different uses, were the same, whether labourers, landowners, or capitalists were entrepreneurs.

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[1] Cf. Wicksell, *Lectures* (Eng. ed.), p. 126.

[2] " The Equilibrium of the Firm ", *Economic Journal*, 1934, pp. 60–76. I was not aware at the time that Wicksell had similar doubts about the validity of the Marshallian construction.

When he came to deal with capitalistic production he assumed that the capitalists are the entrepreneurs—though he also toyed with the assumption that the labourers are entrepreneurs[2]—and therefore, in accordance with this analytical device, he assumed that the capital each entrepreneur employs in his business is constant—he can neither hire capital nor lend his own capital to outsiders—so that the determining condition of equilibrium became the maximisation of the *rate* of profit on capital. Since he also assumed, however, that in equilibrium, the rate of profit, for each entrepreneur, must be equal—because if certain entrepreneurs earned more than others they would move from one industry to another—the results were no different from the case where entrepreneurs hire capital.

But the reaction-mechanism of the system is different. When each entrepreneur possesses a constant amount of capital there is no supply price of capital for the business ; there is no " rate of interest " ; and since the only alternative form of employment of capital is to invest it in a different method of production (in producing a larger or smaller stream of output), a rise in the rate of profit under these conditions produces exactly the same effects as a rise in the rate of interest. A rise in the rate of profit from, say, 5 to 6 per cent. will have exactly the same effect on the optimum use of capital as a rise in the interest rate from 5 to 6 per cent. And since, under conditions of perfect competition and constant returns to scale, the average and the marginal rates of profit are necessarily equal, the only circumstance capable of changing the rate of profit will be a change in wages, relative to output prices ; the optimal output per unit of capital will, therefore, depend only on " real wages ".

Wicksell, however, unlike Professor Hayek, was aware of the limitations which this device imposed on his analysis, as becomes abundantly clear from the following passage :—[3]" Naturally, the entrepreneur strives to attain the maximum absolute and not relative profit ; we must therefore necessarily start from something fixed and given, or else the whole edifice will vanish into thin air.[4] We must assume that the entrepreneur disposes of *either* a given amount of capital (his own or borrowed), or else a given area of land, or finally a given amount of labour (as in co-operative agriculture). *But in this case the Principle of Substitution only comes into operation for the factors of production demanded by him and not for those he already possesses.* Only in a general equilibrium resulting from competition between entrepreneurs, *where their profits are theoretically forced down to zero*, does the Principle of Substitution or marginal principle hold universally."

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[1] We must remember that Wicksell's construction, unlike Marshall's, was not meant to be " realistic "—it was purely an auxiliary construction designed to get his problem out of the way. (When Wicksell analysed the " conditions of equilibrium " he always had his tongue in his cheek a little bit—which was certainly not true of Marshall.)

[2] Cf. *Über Wert, Kapital und Rente*, pp. 95 ff, *Lectures*, Vol. I, pp. 172 ff.

[3] *Cassel's System of Economics*, reprinted in *Lectures*, Eng. ed., Vol. I, p. 244. Italics mine, except the word " either ".

[4] By the " whole edifice " he presumably means the competitive equilibrium theory of economics.

As we shall see below, this is precisely what Professor Hayek is trying to do: to examine the problem of the substitution between capital and labour by postulating conditions under which the Principle of Substitution does not apply.

VI

THE WICKSELL-FIRMS AND THEIR "RICARDO EFFECT"

Professor Hayek, in his latest essay,[1] while he re-emphasises the fundamental importance of the "Ricardo effect" in the causation of economic crises, and goes to great lengths to prove that credit expansion makes it "sooner or later inevitable that real wages should fall and investment expenditure be reduced",[2] now appears to realise that the operation of this "effect" depends on the assumption that scarcity of funds sets the effective limit to a firm's scale of operations. At any rate, the re-statement of the Ricardo effect is now explicitly done under the assumption that "there is no lending of money of any kind during the period with which we are concerned: entrepreneurs either owning all the capital they employ and *being effectively prevented from lending any of it*, or being limited by a strict rationing of credit".[3] He apparently forgets that these assumptions make his model completely unsuited for an examination of the problem he is interested in, *i.e.*, whether a rise in the rate of profit will be followed by a rise or fall in investment expenditure; since such firms by hypothesis cannot either increase or decrease their investment, being strictly limited to the steady re-investment of their amortisation quotas. We obviously cannot assume that the whole economic system consists of such "Wicksell-firms"; if we did, there would be a constant rate of investment, and no trade cycle. The mere fact that there are wide fluctuations in the level of investment (which is after all the basic phenomenon Professor Hayek is trying to explain) is sufficient to show that, in a considerable section of the economy at any rate, the supply of funds must be elastic—the scale of operations of individual firms must be determined by some factor other than the scarcity of funds at their disposal.[4]

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[1] "The Ricardo Effect," ECONOMICA, May, 1942, p. 145.

[2] P. 144.

[3] P. 130. (My italics.)

[4] Professor Hayek regards the case where the firm is faced with an infinitely elastic supply of credit as "theoretically very interesting but practically irrelevant" ("The Ricardo Effect," p. 138), and in one sweeping passage he condemns its assumption as "not only unrealistic

Let us concentrate, however, on these " Wicksell-firms "—ignoring, for the moment, whether they exist in reality or not, or whether they could play an important role in the trade cycle. Will the behaviour of these firms really exhibit the characteristics Professor Hayek attributes to them ? Professor Hayek insists, in both of his essays on the subject, that the effect of even a small change in product prices relatively to wages will be very far-reaching on the kind of investment adopted—it will cause widespread substitution of " shorter " for " longer " processes, of " labour " for " machinery ". We have already seen above that the magnitude of this reaction in response to a given rise of the rate of profit[1] will be the same as that of an equivalent rise in the rate of interest. But the magnitude of the rise in the rate of profit, resulting from a given rise in product prices, will depend on the period of turnover (in other words, on the amount of capital used per unit of output). If *very short* investment periods are assumed, the effect will be large. Professor Hayek's firms are assumed to have investment periods of one month, three months, six months, etc.—the longest being two years.[2] On this basis he is able to show that even in response to such a small rise in product prices as 2 per cent. the rates of profit will be raised from 6 to 30 per cent. (for the one-month firm), 6 to 14 per cent. (for the three months firm), and so on.[3]

But what is the point of such examples ? We are not concerned with the economics of the Trobriand Islanders, but of the industrial communities of a Western world, and here the average period of turnover of capital should be measured in years and not in months. If

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but, when we contemplate its implications, perfectly fantastic (*ibid*, p. 140). But this must be due to a confusion between the concept of " infinite elasticity " and " infinity ". All that his own argument demonstrates is that no firm can borrow *infinite* amounts—that the borrowing power of any firm must ultimately be limited. But this is quite consistent with the elasticity of the curve being infinite in the neighbourhood of equilibrium ; indeed, it follows from his own assumption of the " stepped up " supply curve of credit that his elasticity *will* be infinite —unless borrowing power is the effective limiting factor, in which case it will be zero. What he should have argued, therefore, is *not* that there are ultimate limits to borrowing power, but that borrowing power is necessarily the *effective* limiting factor of the firm's scale of operations ; that other limiting factors—such as internal diseconomies of scale to the firm, or imperfect competition (limitation of selling power)—are inoperative. No doubt, he can set up a model, like Wicksell, where other limiting factors are ruled out (by assuming perfect competition and constant return to scale) ; a world where each firm must always invest up to the limit of its borrowing power. But this model, though it may be necessary for the demonstration of the " Ricardo effect ", could hardly be suitable for dealing with problems of the trade cycle.

In another place he links up the assumption of an infinitely elastic supply of capital to the *firm* with there being an infinitely elastic supply of *money*, to the economic system as a whole. The two are clearly not the same, all that the former assumption presupposes is the existence of a capital market, where capitalists can lend to each other.

[1] Strictly speaking, the *marginal* rate of profit. But we may assume for simplicity that there is perfect competition and constant returns to scale, so that the marginal and average rates of profit are equal.

[2] *Profits, Interest and Investment*, pp. 8–9.

[3] This assumes, of course, a kind of perfectly competitive pricing system where the profit margin is entirely governed by the period of turnover of capital, *i.e.* for the firm with the one-month turnover period it will only be ½ per cent. of price. In this case, a 2 per cent. rise in prices will raise the profit margin, and thus the rate of profit on capital, to five times the former figure.

the amount of capital used per unit of output is five times the annual value of that output—and this is surely not an unreasonable figure—the rise in the rate of profit will be only from 6 to 6.4 per cent. The "enshallowing" effect in this case will be negligible; and since—in reality, as distinct from theory—the "investment period" cannot be varied continuously but only in discreet intervals (for there are only a limited number of alternative methods available) it might well be non-existent.

To put the same thing in another way: the strength of the "Ricardo effect" of the Wicksell firms depends on the magnitude of the proportionate change in profit margins (i.e. the percentage excess of price over prime costs). A given change in prices will cause an appreciable change in profit margins only if these profit margins are small or if the change in prices is large. Thus, if the profit margin is only 3 per cent., a 3 per cent. rise in price will double it. But if the profit margin is 30 per cent., a 30 per cent. increase in price is needed to double it. Since it needs no prolonged empirical research to discover that profit margins in the real world are more of the order of 30–40 per cent. than 3–4 per cent., it is clear that fairly large changes in product prices (relatively to wage-levels) would be required in order to make the "Ricardo effect" quantitatively significant—changes for which there is no statistical evidence whatever.[1]

Professor Hayek, in answer to Mr. Wilson, who already put forward this argument,[2] denies its validity, and says it is due to a confusion. He re-asserts the view that the "Ricardo effect" will be important, and goes even further, and says it will be all the *more* important the longer is the investment period. "By comparing the effects of a price rise on a two years' investment with that on investments for a few months, I was understating my case, and what appeared to be true on these assumptions must be *a fortiori* true of the more realistic situations where machinery that will last ten or even twenty years is introduced to save current labour" (or, rather, he should have said, since he is considering the effects of a price rise, "where current labour is introduced in order to save machinery that lasts ten or twenty years").[3] If our own reasoning is correct, then this last statement must be the opposite of the truth.

VII

The Irrelevance of the "Ricardo Effect"

So far we were merely concerned in showing the particular assumptions required in order that the "Ricardo effect" should operate, and the additional conditions necessary in order that it should be quantitatively important. All these were preliminaries. We now come to the main point of the story: how far is this whole business relevant to Professor Hayek's main thesis, which is that a rise in demand for consumers' goods leads to a fall in investment expenditure, thereby causing unemployment and general depression ?

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[1] On this cf. section VIII, p. 380 below.

[2] *Review of Economic Studies*, June, 1940, pp. 170–171.

[3] Economica, May 1942, p. 134, note 1.

Professor Hayek asserts that owing to the " Ricardo effect " sooner or later this must *inevitably* happen—the question is, can it happen at all ?

Let us assume conditions most favourable to Professor Hayek: let us suppose that the economic system consists of firms each of which is faced with an " upward sloping " supply curve of capital. If we assumed, like Wicksell, that the supply curves are vertical, there could be no reactions on investment expenditure, positive or negative. If we assumed horizontal supply curves, then, as Professor Hayek now himself admits,[1] the " Ricardo effect " would be inoperative. But with the upward sloping supply curve we have a case where investment expenditure is variable and at the same time the " Ricardo effect " works—in the sense that a rise in the demand for the products of the firms will tend to be followed by a reduction of the capital intensity of their investments.

The capital intensity will be reduced, in this case, because the rate of interest has risen, and the rate of interest will have risen because the rate of investment has gone up ; if the rate of investment had *not* gone up, the rate of interest would not have risen. But in that case the capital intensity of their investments would not be reduced. However hard we try, we cannot construct a case where as a result of a rise in the rate of profit the capital intensity falls *and* as a result of this fall in capital intensity, investment expenditure will be less than it was before.[2] To argue in this way, involves the same fallacy as saying that because a rise in demand for a commodity will cause a rise in its price, and the rise in price causes a restriction in demand (because less is bought at a higher price than a lower price), the increase in demand will lead to a reduction in the amount bought. No doubt the rise in price will make the increase in purchases (following upon the increase in demand) less than it would have been if the price had not risen. But it cannot make it less than before, since

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[1] Cf. p. 370 above.

[2] This proposition may be made clearer perhaps if set out in mathematical terms. In the situation contemplated, the rate of investment expenditure, I, is a product of the level of planned output, x, and the amount of capital per unit of output, k. The marginal rate of interest, r, will be an increasing function of I; k, as shown in section IV above, will be a diminishing and single-valued function of r, while x will be an inverse function of the rate of *real* wages, w, (which is treated as a datum).

We have therefore a system of four equations

$$\begin{aligned} I &= k\,x \\ r &= f(I) \\ k &= \phi(r) \\ x &= \psi(w) \end{aligned}$$

to determine the four variables, k, x, r and I. Since r depends only on I, and k on r, $\frac{df}{dI}$ and $\frac{\partial I}{\partial x}$ are positive, $\frac{dI}{dx}$ must be positive, and $\frac{dI}{dw}$ negative—a fall in real wages must be followed by a rise in investment expenditure.

the price has only risen because the amount bought has gone up. In the same way, the reduction in capital intensity will make the rise in investment expenditure less than it would have been if capital intensity had remained constant. But it cannot eliminate it altogether because capital intensity would not have fallen if investment expenditure had not risen.

This is the fundamental point, which knocks the bottom out of Professor Hayek's new theory of the trade cycle, quite apart from any arbitrariness or unreality of the assumptions on which it is based.

Professor Hayek makes really no attempt to prove this proposition, on which his whole theory of the trade cycle turns. But he brings forward three different arguments in connection with it—none of which affords the slightest support to his proposition. We shall attempt to deal with them briefly.

(1) In *Profits, Interest and Investment* there is a long and involved argument,[1] the gist of which is this. Suppose there are two kinds of machines, produced by two different industries, and that the labour in the two industries is not interchangeable. When the rate of profit goes up in the machine-using industries, and capital intensity falls, the demand will be switched from machine A to machine B.[2] The A-machine industry will get depressed. For a time the growing unemployment there will be offset (from the point of view of society as a whole) by the rise in employment of the B-machine industry; but this can happen only so long as the B-machine industry has a reserve of labour. Once this is exhausted, further increases in the rate of profit will *further* reduce employment in the A-industry, without a compensating increase in the B-industry. So it comes about that " there will be an increase in the demand for kinds of labour of which no more is available, while at the same time the demand for other kinds of labour will fall and total employment will consequently decrease."[3]

The fallacy here is that with the rise in profits in the machine-using industries, the employment of A-machines did not become *absolutely* unprofitable, but only *relatively* unprofitable. In fact, the profits to be made by using A-machines increase all the time; demand is switched to B-machines solely because the profits to be made on these are even greater. As soon as the B-machine industry gets fully employed, in response to further rises of demand B-machines will rise in price, or simply become unobtainable. In either case it will again become more profitable to use A-machines. When employment in the B-industry ceases to rise, then, on Professor Hayek's own assumptions, the demand for A-machines will begin to rise.

(2) In the " Ricardo effect " there is another argument,[4] based

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[1] Pp. 20–29.

[2] Machine A is assumed to require more labour to construct but to be more labour-saving in use than machine B.

[3] *Op. cit.*, p. 28.

[4] Pp. 146–147.

on the "limitation of real resources", which, as far as I understand it, is as follows. Professor Hayek supposes that the boom has reached a stage where there is full employment in the machine-making industries (while presumably, although this is not explicitly stated, there is still a reserve of labour available in the machine-using industries). Hence the price of machines will rise, relatively to the price of labour in the machine-using industry, and this will cause a tendency to install less costly machinery.

Now it is quite true that when the price of machines rises, relatively to the price of labour in the machine-using industry, this does affect the productivity of different kinds of machines. But what is Professor Hayek trying to prove ? Again he confuses influences coming from the side of demand with influences coming from the side of supply. If the price of machinery rises, the demand for machines will be less than if it did not rise. But the price of machinery has only risen, on his assumptions, *because* demand has arisen ; how does this explain then the emergence of unemployment ? His business is to prove that demand will fall ; not that a rise in demand will be checked by a rise in price.[1]

But quite apart from this, why assume a situation where the labour in the machine-making industries becomes scarce *relatively* to the labour in the consumption goods industries ? Surely it is more in keeping with Professor Hayek's own assumption as to the " shortage of savings ", and more in accordance with what might happen in the course of a boom, that the labour in the consumption goods industries becomes scarce, relatively to the labour in the machine-making industries. In that case, however, the scarcity of labour will have the *opposite effect* to that contemplated by Professor Hayek : it will give an extra stimulus to deepening, and not to enshallowing.

(3) Also in the "Ricardo effect" Professor Hayek argues that, although it may pay the entrepreneur best to install the more expensive machinery, in the sense that it will give him higher profits once it is installed, the less expensive type of machinery can be installed more quickly, it will begin to earn profits sooner and therefore the entrepreneurs will prefer it. There are three comments to be made

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[1] In connection with this argument, Professor Hayek takes me to task for having failed in an earlier article to deal with the problem of what determines capital intensity under conditions of monopsony in the labour market. (This refers to " Capital Intensity and the Trade Cycle," ECONOMICA, February, 1939, pp. 45 ff.). According to him, in this way I have " apparently succeeded in eliminating the given supply of capital from the relevant data of the problem " (" The Ricardo Effect," p. 146.) I cannot pretend to see the connection between the problem of the " given supply of capital " (does Professor Hayek mean by the " supply of capital " the supply of savings or the supply of labour ?) and monopsony in the labour market ; but the reason for my failure to deal with this case is easily explained. When there is monopsony in the labour market, the relevant concept is not " marginal real wages ", but " marginal real labour cost ", which depends also on the elasticity of supply of labour to the entrepreneur. When, however, the " labour " in question is situated in different industries (in the machine-making and machine-using industries) the assumption of a given elasticity of supply, for all labour, has no meaning, and the concept of " marginal real wages " breaks down. I fail to see, however, how the assumption of monopsony adds anything to Professor Hayek's argument. The problem of a scarcity of labour can be dealt with quite easily without assuming monopsony.

on this argument. First, he does not show why the less expensive machinery should necessarily be obtainable more quickly. The more expensive machinery requires more labour to make it, but not necessarily a longer construction period. Second, if it does, the extra interest cost during construction is already taken into account in determining its marginal productivity; in determining, that is to say, at what rate of interest its installation becomes profitable. It is only if the entrepreneur expects higher prices for his products in the near future than in the more distant future that it might become profitable to install the machine with the shorter construction period, even though the rate of interest is the same. Third, assuming that the latter is the case, what does it prove? Nobody wishes to deny that the capital intensity of investments under boom conditions might be less than under depression conditions—either for this or that or some other reason.[1] But Professor Hayek has taken on himself to prove that this will cause a fall in demand for capital goods, and thus unemployment in the capital goods trades; and to the latter contention this argument contributes nothing at all.

VIII

THE TRUTH ABOUT THE CONCERTINA-EFFECT

We have now seen that the concertina-effect, even in its new version, fails to live up to expectations: it cannot be advanced as the causally significant factor in the trade cycle. But the question still remains whether it exists at all as an accompanying phenomenon of the cycle. Is it true that the fluctuations in the rate of investment are accompanied by fluctuations in the capital intensity and, if so, does the concertina move cyclically or counter-cyclically? Professor Hayek, as we have seen, was an adherent at one time or another of both these views.

In the new version, the concertina-effect is all based on the alleged cyclical fluctuation of real wages and profit margins. According to him, it is " one of the best established empirical generalisations about cyclical fluctuations " that " somewhere half-way through the cyclical upswing "[2] real wages begin to fall and profit margins rise, while during the downswing the opposite happens. Moreover, he suggests, throughout these essays, that these variations are fairly considerable.

Now reliable evidence on this matter cannot be gained merely by comparing wage-series and cost-of-living indices; since the relevant price-relation is not, as Professor Hayek himself insists, wages in terms of cost-of-living goods, but wages in terms of the prices of their own products. To obtain this evidence we must turn therefore to Census of Production statistics, which give information on profit margins (the difference between the value added by manufacture and wages cost). The following figures, relating to the percentage of gross profit margins in the value of the net output of manufacturing industry, of the United States and Germany, were calculated by Dr. L. Rostas :—[1]

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[1] Cf. my article " Stability and Full Employment," *Economic Journal*, December, 1938, and " Capital Intensity and the Trade Cycle," *loc. cit.*

[2] *Profits, Interest and Investment*, p. 11.

SHARE OF GROSS PROFIT IN THE NET OUTPUT OF MANUFACTURING INDUSTRY

	United States	Germany
1919	59.3	—
1921	56.8	—
1923	58.7	—
1925	61.2	—
1927	61.7	—
1929	64.5	61.8
1931	64.0	—
1932	—	69.9
1933	64.7	67.5
1935	60.5	68.8
1937	59.8	69.5

The figures suggest, if anything, that cyclical movements of profit margins are neither significant nor do they follow a regular pattern. Thus in Germany, in the boom year of 1929, profit margins were considerably *lower* than in the depression year 1932 ; in the United States they are practically the same in 1929 and 1931—at the top of the boom and the middle of the depression—while they gradually fall during the revival years, 1933–1937. The evidence, such as it is, suggests rather the opposite of Professor Hayek's " best established empirical generalisation ".

Does this mean that we should go back to Professor Hayek's original position, and assume that the concertina works the other way ? Capital intensity, as we have seen, is much more a matter of interest rates than of profit-margins ; and the rate of interest on the whole tends to be higher in boom periods than depression periods, although the differences are not large. This would suggest " deepening " in the depression and " enshallowing " during the boom. But there is another factor to be taken into account. New technical inventions are constantly occurring, and since they are mainly of a labour-saving character, they create a trend of constant deepening (quite independently of movements of interest rates or profit margins) which probably swamps any cyclical fluctuation between " deepening " and " enshallowing ".

The investment cycle, as Mr. Hawtrey has said, is essentially a matter of widening and not of deepening. Some deepening always goes on, and though the extent of deepening might vary between booms and depressions, it is by no means certain which way the variation goes. The adoption of new technical processes largely depends on a general atmosphere of optimism, and this is more likely to be present during booms.

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[1] British Censuses of Production are unfortunately too infrequent to afford evidence of cyclical movements.

But in any case the variation is more likely to be one between greater and lesser deepening, and not, as the " concertina-effect " suggests, between deepening and enshallowing.[1]

IX

The presence of so many contradictory arguments is not accidental: it is due to the desire to demonstrate, at all costs, that the scarcity of capital is the great cause of economic crises and a direct cause of unemployment. Professor Hayek has been trying to prove this proposition ever since he first wrote on the subject. In the course of time the arguments became more ingenious and more complicated, but they brought him no nearer to proving it than he was at first. Since that time it has been shown over and over again that the only sense in which the concept of the " scarcity of capital " has a definite meaning is an insufficiency of saving; and the only way an insufficiency of saving can manifest itself is in causing hyper-inflation in a state of full employment, and not in depression-unemployment.

Professor Hayek, as far as I know, has never answered these arguments; nor has he troubled to explain why a trade boom cannot come to an end through a *fall* in the rate of profit. There is the dogmatic assertion that the end of the boom can " *never* come from a fall in profits or an exhaustion of investment opportunities ", but it is not supported by any analysis or argument; and although he analyses certain features of the investment process with great detail and subtlety, other and more important features (such as the effects of past investment in increasing output capacity and thus reducing the need for further investment) are completely passed over. Nor is there, in any of his recent essays on the trade cycle, any mention of the numerous recent theories of the trade cycle (Kalecki, Harrod, Schumpeter, Hansen—to mention only a few) which all reach the opposite conclusion. The economic journals of the world have been buzzing with theories of this type in the last few years, but as far as Professor Hayek's writings are concerned they simply don't exist.

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[1] Professor Hansen, in his book on *Fiscal Policy and Business Cycles*, emphasises how unimportant deepening is, as a form of investment (let alone its cyclical variation !) as compared to widening. Both in the United States and in England, the rate of growth of real capital, since the last quarter of the nineteenth century, was no greater than the rate of growth of output. " Thus during the last fifty years or more, capital formation for each economy as a whole has apparently consisted mainly of a widening of capital. Surprising as it may seem, as far as we may judge from such data as are available, there has been little, if any, deepening of capital " and " our system of production is little more capitalistic now than fifty or seventy-five years ago " (p. 355). There can be little doubt that as far as the trade cycle is concerned, the analysis of the cyclical process would not be altered in any significant particular, if one excluded the consideration of the deepening process altogether.

If on some future occasion he would start " at the other end ", and would show why all these other theories are wrong, instead of giving yet another version of his own views, it might be easier to arrive at the truth.

POSTSCRIPT

With regard to the *Comment*, printed below, I should like to remind Professor Hayek that in his *Prices and Production* theory, the increase in the level of investment and the " lengthening of the productive period " were regarded as different aspects of the same thing; whereas on his recent theory, the " period of production " varies *inversely* with the level of investment. He can either argue (as he did then) that the investment boom generated by credit creation is a foredoomed attempt to force the use of more productive methods on a reluctant community; or (as he did more recently) that credit expansion, on the contrary, involves the progressive sacrifice of productivity, in the desire to obtain ever larger streams of consumption output. But he cannot maintain both of these propositions at the same time; nor can he assert—without depriving words of the last vestige of meaning—that an " undue lengthening " of the period of production is the same thing as an " undue shortening " of it.

A Comment

By F. A. v. Hayek

As it is impossible for me to foresee at present when I shall be able to answer more fully Mr. Kaldor's criticism, I am anxious to add here at least as much as is necessary to prevent a misunderstanding from spreading. Mr. Kaldor considers that a fundamental conflict and even a contradiction exists between my views as expounded in *Prices and Production* and those developed in the later "versions" of my theory with which he is more directly concerned. Though I hope that in the dozen years since I wrote *Prices and Production* my understanding of the problems involved has somewhat increased, I find it impossible, hard as I try, to find any irreconcilable conflict between the earlier and the later version. Whatever may be the merits of Mr. Kaldor's criticism of either version, I cannot help feeling that in so far as he stresses the contrast between them he is labouring under a misapprehension.

In this brief note I must confine myself to the two main points on which I am represented as having changed my views. The first is connected with the admitted shift of emphasis from changes in the money rate of interest to changes in the relation between factor prices and product prices as the element governing the choice of the methods of production. If Mr. Kaldor will re-read my discussion of the changes in the "price margins" (as I then called them) on pp. 68–83 of the first edition of *Prices and Production* (pp. 72–92 of the second edition), he will find that they played then precisely the same role as they do now, and particularly that it always was these "price margins" and not changes in the money rate of interest which I treated as the cause of changes to more or less "capitalistic" methods of production. It is true that (after explicitly pointing out that these price margins may move independently of the money rate of interest) I did not further consider the possibility of such a divergence between the price margins and the rate of interest continuing for very long. But then I was at that time not concerned with the case of a major inflation (or deflation) but assumed (I still think reasonably) that a change in price margins would sooner or later bring about a change in the money rates of interest in the same direction. Since this naturally raised the question whether all the unpleasant consequences I discussed could not be avoided by preventing the money rate of interest from rising, I was led later to investigate the same mechanism on the assumption that money rates of interest were deliberately kept constant. The essential argument is still the same, but the assumptions under which I describe the operation of the mechanism in question are different.

The second point is the alleged shift of emphasis from the phase in which the " period of production " is unduly lengthened to the phase in which it is shortened and the connected assertion that in my " new " theory the " lengthening " and the " shortening " of the capital structure are assigned to other phases of the cycle than those in which they were originally supposed to take place. Though Mr. Kaldor's references to this point hardly suggest this, he must surely be aware that these are both necessary phases in that process of alternate " lengthenings " and " shortenings " of the investment period which I still believe to be characteristic features of industrial fluctuations. I am afraid I cannot see the difference between fearing the necessity of having to abandon investments because it has been attempted to make the capital equipment more " capitalistic " than is compatible with the size of that part of the people's income which they want to take out in the form of consumers' goods, and fearing that the methods of production may be made unduly capitalistic because that will later make the abandonment of these methods necessary. We can prevent such waste either by preventing the misdirected investment in the first stage or, if it has already occurred, by keeping down consumption in the second to the level which is compatible with the completion of the investments.

When Mr. Kaldor asserts of the rôle of the changes of the production period in the successive phases of the cycle that " in the first version they become unduly long during the boom and had to be shortened in the depression ; in the new version they become progressively shorter as the boom progresses, and gradually lengthen as real wages rise with the fall of employment ", this statement is inconsistent with the more correct interpretation of the first version which he gives elsewhere. As he rightly emphasises, the lengthening was then supposed to be the effect of low interest rates. But low interest rates prevailed during the characteristic cycle of the past only during the early stages of the upswing and to those the lengthening process was, and is, therefore confined. In the old scheme this lengthening process would come to an end as interest rates begin to rise, just as this happens under the different assumptions underlying the new scheme when profit margins begin to rise. And under both schemes this would lead to a reduction of the volume of investment only when the effect of the shortening was strong enough to outweigh the effect of what we have since learnt to call the " widening " of capital—though this interaction of the two different effects was not explicitly discussed in the earlier version.[1]

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[1] I had already tried to make this point clear against a similar earlier statement by Mr. Kaldor in *Profits, Interest, and Investment*, pp. 38–39, footnote.

Finally, the apparent paradox that a high level of profits compared with the rate of interest should bring about a reduction of investment appears a paradox only because Mr. Kaldor fails to distinguish clearly between the aggregate volume of profits and the " profit margins " in the technical sense in which I have defined the term, *i.e.*, the ratio between factor prices and product prices. I have not denied, of course,—and it forms, in fact, an essential part of my argument,—that high profits in the ordinary sense are the strongest stimulus for the entrepreneurs to increase *output* and that the higher profits are the more anxious entrepreneurs will be to expand output quickly. And it is equally obvious that the larger the *amount* of profits entrepreneurs can gain by increasing investment the more ready they will be to borrow at any given rate of interest. But the whole point is that expanding final output and expanding the volume of investment are not necessarily the same thing, and that the endeavour to provide a large output quickly, such as may be caused by a large " profit *margin* ", may be the cause of a decrease in the volume of investment—in other words, that an increase of the " profit margins " may create a situation where each entrepreneur aiming to maximise his aggregate profits may result in a smaller volume of total investment.

The " island " illustration which Mr. Kaldor is good enough to quote at length[1] from *Prices and Production* fits as well into my present views as it fitted into those expounded in that book. It seems to me obvious that in the situation depicted in that example, and assuming a price system to operate on the island, it would be the rise in the prices of consumers' goods which would bring about the abandonment of the investments undertaken when consumers' goods were cheaper. The question with which I have been concerned more recently was whether the difficulties of the unfortunate islanders could be overcome by giving them merely enough money to keep the money rate of interest from rising. Mr. Kaldor, with the now fashionable opinion, seems to believe that this would solve their problems. I rather doubt it.

POSTSCRIPT

I am sorry that in the Postscript Mr. Kaldor has added in reply to the above, he should have misinterpreted me even worse than before. It is certainly not my view, or compatible with my views, to say that " the 'period of production' varies *inversely* with the level of investment." The growth of the volume of investment during the early stages of the book is, on the contrary, entirely the result of the 'lengthening' of the period of production. But while on the assumption of full employment this was the *only* cause of the growth in the volume of investment, the latter can evidently continue for some time after the former has ceased, if 'widening' is possible.

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[1] See above, p. 360, footnote. The italicising of the last phrase in this passage by Mr. Kaldor seems however to suggest an interpretation of the passage which I do not quite understand and which has clearly nothing to do with anything I had in mind when I wrote it.

Book Reviews

International Economic Disintegration. By WILHELM ROEPKE. London: William Hodge & Co., Ltd. 1942. xii + 283 pp. 21s.

This is a courageous essay in political economy. It attributes the deterioration of international economic relations to State interventionism and advocates a return (under new conditions) to the principles of private enterprise and free competition, not only as a solvent for economic ills, but also as a political disinfectant against totalitarianism. It would have required some courage to state this case in England before the war: to state it from Geneva in 1942 surely required courage of a rather different order.

The facts of the case are common ground. Before the present war the world was getting accustomed to using its economic resources less and less rationally. There was not even an approximate correspondence between the kinds and amounts of goods which on any rational basis of comparative costs should have moved in international trade, and the imports and exports that actually occurred. Professor Roepke has no difficulty in showing that the situation was in fact worse than that indicated by the available statistics and that it was exaggerated by ill-considered attempts to industrialise agricultural countries and to protect agriculture in industrial countries. Nor is he likely to meet criticism in ascribing the extremes of economic nationalism to the rearmament race of 1935–1939. The heart of his contribution, however (which is reinforced by an appendix by Professor Rüstow on the sociological aspects of the matter), lies in the assertion that most of these troubles arose from the omission of the classical liberal economists to define precisely the social framework within which a competitive economic system would produce the best results. According to Professor Roepke the "economic man" of the classical analysis was not Robinson Crusoe or the odious synthetic creature of the textbooks; he was an English gentleman of the eighteenth century, seen against the background of the moral, political and legal institutions of his age, all of which were taken for granted. The error lay in the easy assumption that a liberal economic system would maintain and even improve these institutions; recent events suggest that on the contrary it contributed powerfully to breaking them down once a certain stage of deterioration was passed. In their emphasis on the prime importance of the economic system, narrowly defined, the classical economists thus put the cart before the horse ; the horse has retaliated by kicking the cart to pieces.

This is an odd reproach against the breadth and philosophical insight of 1776 and all that. But judged by the course of nineteenth century history it is not unfairly levelled. At some point in that century it is clear that lawyers and economists should have collaborated in order to find the appropriate legal form of words to ensure that the economic conception of " private property " was written into a social institution. They did not ; and as a result we are left with an inheritance of privately owned patent rights, privately owned mineral royalties and ownership rights of limited companies in one another's stock, which might not otherwise have been created. When came the great debate on the most satisfactory legal form of " free enterprise " ? If there had ever been a great debate we should presumably not have suffered during the last fifty years under a moribund rule of the common law against restraint of trade. Nor should we have an Anti-Trust Law of 1890 or 1914 or any year before the discovery of the economics of imperfect competition. And to come to the *international* institutional background, when was any enquiry made to discover not what the rules of the gold standard were and how often they were broken after 1919, but what they *ought* to have been in order to safeguard the freedom of international trade on the basis of comparative cost ? How is " comparative cost " to be defined in this connection (in words which can be understood by lawyers) so as to ensure the most effective use of the world's resources ?[1]

It is a pity that Professor Roepke gives us such sketchy answers to these questions himself and keeps to the rather well beaten path of acid comment on the decay of the liberal system and the naïveté of those who propose to supplant it. If clear answers are not given and given quickly, the case may go by default.

The book shows signs of having been written over a long period, most of it before the war, and not revised since. It is too long and repetitive, and, although there are some shrewd asides,[2] the style is prolix and the language is not very happy in some places (" farmerisation " = a marked tendency towards a less traditional outlook on the part of peasant farmers, and " peasantisation ", its opposite, should not, I think, be encouraged). Its chief fault is its inadequate treatment of the effect of unemployment on the traditional theory of international trade. All we are offered is a dozen pages of somewhat cursory criticism of " autonomous business cycle policies ", in which " the road from cheap money to the concentration camp " figures largely. The possibility of joint *international* action " directed to the expansion by appropriate international and domestic measures of production, employment and the exchange and consumption of goods" (in the words of the Lease-Lend Agreement) does not figure at all. These omissions, however, do not detract from the importance of the main questions raised in the book. I think it is up to Professor Roepke to start answering these questions in concrete terms. Time is short.

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[1] " Access on equal terms to the trade and raw materials of the world which are needed for their economic prosperity " is perhaps not a bad beginning. " Access on free and equal terms " would have been even better.

[2] E.g., on the " Maginot mentality " of economic stability (p. 215) : and on the cumulative nature of agrarian protectionism—" There is no government which, looking complacently on its agricultural policy, can exclaim with Faust : ' Ah, still delay—thou art so fair ' " (p. 139).

A. S. J. BASTER.

The Economics of Price Determination. By C. CLIVE SAXTON. Oxford University Press and Humphrey Milford. 1942. 190 pp. 10s. 6d.

The first part of Mr. Saxton's book gives a general survey of business practices. Personal contact with many industrialists, a questionnaire circulated amongst fifty firms in the majority of British industries to test the general applicability of their methods, examples of cost and production budgets, all these combine to paint a vivid picture. As an inside account of business behaviour it is a welcome addition to the literature of imperfect competition.

According to the author, however, the main aim of the book is to provide an empirical test of the theory of price determination under conditions of imperfect competition based on the marginal analysis of the equilibrium of the firm. This indeed he does. Yet even the least sceptical of his readers is unlikely to accept the author's conclusion, however guarded, that the marginal analysis "may be fairly regarded as of general application if considered in a somewhat broad and not a precise sense". The distinction made by producers between fixed and variable costs may well approximate to the economist's concept of marginal cost. But there is nothing in this account to show that marginal revenue, explicitly or implicitly, in a precise or in a broad sense, plays any role in the determination of prices. Apart from a hypothetical price-fixer (pp. 147–8) who looks very much like an economist in disguise, most of the firms had no knowledge at all of the effect on sales of a reduction in their prices, or believed them negligible or too small to be profitable. They had a host of reasons why they avoid the ventures of price-cutting; a host of reasons why they prefer to keep their prices stable. All this explains why many prices rarely change. But it does not show why they are what they are.

Yet, the author is determined to keep marginal analysis alive at all cost. Accordingly, whenever equality has been achieved between expected and realised sales this is said to mean that marginal revenue has been correctly assessed: "Although the producer may not actually have drawn the curve he has gauged correctly its location at a point, and probably too the shape of a small section of it" (p. 149). If actual and expected costs coincide as well—"the firm has maximised its profits" (p. 151)! And neither tables nor diagram throw any light on these puzzling assertions.

Elsewhere in this book, however, we find an alternative approach to the problem of price determination. Here, selling price is arrived at by adding to cost price a percentage of profit. These profit margins may vary to meet changing circumstances (p. 127); much will depend upon the custom of the industry and the practice of the individual firm (p. 113); changes in costs will not necessarily affect them (p. 133); and, " they may be variable, if they are variable at all, with changes in the producer's price policy " (p. 134). Tantalisingly vague generalisations, that is all. Indeed, whilst forty-eight of the fifty firms that replied to the questionnaire state that they fix prices by adding to cost a percentage of profit, the central question of the theory of price determination: What determines these percentage margins? is never clearly put. Neither the author nor his questionnaire give an answer.

It may well be that there is no answer. Whether profit margins are stable or change, rules that govern their behaviour may not exist. Until we know, however, economics fails to provide a theory of value. And the disquieting conclusion stands that—once we admit the fact that conditions of Perfect Competition do not apply in the real world—prices remain unexplained.

A. RADOMYSLER.

An Essay on Marxian Economics. By JOAN ROBINSON. London: Macmillan and Co. 1942. vii + 122 pp. 7s. 6d. net.

Mrs. Robinson's latest book is symptomatic of the heartsearching that is going on among some of our more able academic economists in view of the complacency and patent social futility of much of current economic analysis which is due, as Mrs. Robinson rightly remarks, to the preoccupation of so many economists " with elegant elaborations of minor problems, which distract the attention of their pupils from the uncongenial realities of the modern world " (p. 4). One of such " uncongenial realities " is capitalist exploitation; a great number of students of economics pass through their colleges without being made aware of this significant phenomenon, apparently because " these simple and fundamental characteristics of capitalism are lost sight of in the mazes of academic economic analysis " (p. 20).

Marxist economics is either by-passed altogether, or else touched upon in a most superficial and condescending manner. Only too often the student is led to believe that Marx was a cranky foreigner who propounded obsolete economic theories and was blind to the glaring contradictions in his own system. Is it too much to hope that this sort of thing will disappear in future?

Mrs. Robinson's essay is a serious and honest attempt to consider the relationship between recent " unorthodox " trends in economics and Marxian teachings. She is, of course, not the first to point out certain similarities that appear to exist between modern and Marxist theories, but the value of her book in this respect is that her survey is systematic and covers the whole field.

One thing emerges clearly from the essay despite Mrs. Robinson's acute and remorseless criticism of alleged " drastic inconsistencies " and minor faults in Marx's reasoning: and this is the extraordinary actuality of Marx's analysis of capitalism which was undertaken some seventy years ago. The explanation of the virility of Marxist economics is, of course, Marx's " broad treatment of history and sociology " (p. vii) based on a revolutionary method of analysing social processes. Marx was concerned with the broad canvas of social existence and in this sense all his theories are approximations to the truth. But Marxism is certainly more than a scientific method. It is just as much a guide to action for the working class, the class-struggle between proletariat and bourgeoisie, first chaotic and subsequently increasingly conscious on both sides, dominating the social scene under capitalism.

It is difficult for an economist of Mrs. Robinson's background to adapt herself, much as she tries, to Marx's intellectual climate. What seems relevant to the one, appears trifling to the other. To her the concept of value is but " a matter of definition " (p. 15). To Marx, however, it is one of paramount importance, viz., of how to depict the substance of economic activity and demonstrate the peculiar form which it will assume under different systems of ownership of the instruments of production. His theory of surplus-value is an application of his general concept of value to conditions obtaining under capitalism. Coupled with his theory of the class-struggle the theory of value gives rise to the remaining body of his analysis. (Mrs. Robinson's discourse on the problem of value in a Socialist Economy seems relevant to the first stage of socialist reconstruction of industry as is actually borne out by the practice of pricing that obtains in the Soviet Union. But the labour theory of value will come into force again under conditions of what Maurice Dobb describes as " capital-saturation ".)

The tendency of the profit-rate to fall is not an inexorable " law ", but just a tendency that can at times be neutralised by counteracting forces which in their turn depend on such factors as population movements, the level of political consciousness of the working-class, the output of gold, the opening-up of new markets, and the like. But the tendency remains active all the time. It represents the central dilemma of capitalist society. Mrs. Robinson tries to question this, saying that " Marx's argument fails to establish a presumption that the rate of profit tends to fall when the problem of effective demand is left out of account " (p. 47). The implication seems to be that if the problem of effective demand is solved, the dangers attendant on the trade-cycle will either be minimised or banished altogether. As Mrs. Robinson's later chapters show, Marx was certainly alive to the difficulties with which capitalists become confronted in their efforts to " realise surplus-value ", so much so that much of the Neo-Marxist thought has assumed a definite under-consumptionist twist. Nevertheless, the impression that Marx's analysis " clearly leads to the view that maldistribution of consuming power is the root of the trouble " (p. 57) is, in my opinion, totally wrong. " It seems clear," as Maurice Dobb points out, " that Marx considered the contradictions within the sphere of production—the contradiction between growing productive power, consequent on accumulation, and falling profitability of capital, between the *productive forces* and the *productive relations* of capitalist society—as the essence of the matter." (*Political Economy and Capitalism*, 1940 edition, p. 121.) In this connection Marx's argument that real wages tend to be constant has to be considered in the light of his general dialectic analysis and the modification of economic trends by the constellation of class-forces. Mrs. Robinson does not see this point. She seems to think that Marx assumed the rate of exploitation to be constant. This being so, she says, " real wages tend to rise as productivity increases " and thus " labour receives a constant proportion of an increasing total ". This argument is highly characteristic of the narrow mechanistic interpretation which she accords to Marx's reasoning. Besides, I am not aware of Marx treating the constancy in the rate of exploitation dogmatically. Precisely because the tendency for the rate of profit to fall is ever present, there is also the counteracting tendency for the intensity of exploitation to increase.

Mrs. Robinson picks many more holes in Marxist economics, but she is fair-minded enough to pay tribute to the " rough and gloomy grandeur " of Marx's thought. Her advice to academic economists is to use academic methods to solve the problems posed by Marx. Whether or not this advice will bear fruit will depend entirely on the academic economists themselves. The main difference between them and the Marxists is that while they are concerned with *interpretation* of a given economic system (and running a losing race even at that, as Mrs Robinson aptly observes), the Marxists are primarily concerned with *transforming* social reality in accordance with the requirements of the times. I suggest that Marx solved the problems which he posed in the sense that he regarded the change-over from capitalism to socialism as essential to the improvement and salvation of mankind. That, and not a detached interest in the anatomy of capitalism, made him write his *Capital.*

Once it is recognised that the contradictions inherent in capitalism are insoluble, much of the analytical work that is being performed by the more realistically-minded academic economists will appear either as redundant or as belonging to a new species of apologetics covering up the designs of the capitalist class to neutralise the tendency of the falling profit-rate by short-lived expansionist practices or by the sacrifice of interest and rent as income-categories. Thus, a mere realistic re-orientation of contemporary academic economic theory is not enough : so long as academic economists remain but disinterested onlookers of the social scene the similarities between their analysis and that of Marx will continue to be but formal and the gulf that separates them from Marxism will remain unbridged.

E. M. Chossudowsky.

The Theory of Consumer's Demand. By Ruby Turner Norris. New Haven: Yale University Press. 1941. xiv + 206 pp. $3.00.

This book is decisively divided into two parts.

Part I consists of some useful exercises on Indifference Curves, with comments and developments. The analyses of the degree of convexity of these curves, and of the extent of " shift " (or the degree to which substitution affects utilities) are at once satisfying and elegant. They follow utility rather than preference lines.

Chapter II " attempts to present a simplified non-mathematical treatment of the Hicksian approach to demand." The question at once arises " Simplified for what level of readers ? " It has importance because, in view of the repeated references to the obscurity of *Value and Capital*, some readers may be frightened away from that book, to their own loss.

Perhaps we can assume that, at the lowest, Professor Norris is writing for Honours students. Now, her work involves only Book I of *Value and Capital.* But is this really beyond the competence of such students, especially with the help they get ? At least one reader of *The Theory of Consumer's Demand* must confess that he found himself stealing back to *Value and Capital* for clarification. These remarks do not apply to the rest of *Value and Capital*, but this is beside the present point.

The real issue is however deeper. It is the old problem of the proper relation between pure and inductive economics. Professor Norris expresses the fruitful and broad-minded view as to their co-operation at page 56. But some comments fall rather below this level, for instance, the reference to Professor Hicks's " unbelievable backwardness " in confining himself to the perfect competition assumption.

The analysis of indifference curves of substitutes is difficult to follow. The problem set is " what value shall we attach to one unit of butter plus two units of margarine", the total utility of three units of either substitute being 15 (6 + 5 + 4 for successive units of each). The answer given is a total of 13, being four for butter when two units of margarine are taken, plus (5 + 4) for two units of margarine when one unit of butter is taken ; so that the curves are represented as concave. But if only 4 is got from the butter unit, must this not mean that the margarine units were taken first, or preferred ? For only so could its utility fall to 4. If so, the utility from the margarine is (6 + 5), and the total is 15. Otherwise a first unit of either is not taken, which seems impossible. If this is so, as the figures given represent perfect substitutes, the indifference curves are straight lines joining points of equal utility on the axes, and these represent the limiting positions for this family of curves.

This is consonant with common sense. For concave curves would represent more than perfect substitutes. But what can this mean, for economic goods ? After goods have reached perfection as substitutes, competition between them simply ceases. More of the other becomes otiose ; it is no longer an economic good. Professor Norris in fact later says " concavity of the indifference curves occurs only in the case of more-than-perfect substitution " and " more-than-perfect substitutes *are never possessed in combination*, so that the indifference curves which express estimates of the utility of various combinations of the goods cease to possess any utility. The indifference curve family of ' more-than-perfect ' substitutes is an ' empty economic box '."

If so, why are such curves drawn on page 31 ? Is the reason not the questionable analysis of total utility noted above ? These concave curves also involve the difficult assertion that a simple addition of butter to margarine involves a decrease in total utility, as income grows.

In Part II the key changes. We swing over to the facts, especially to the differentiation of wants and the ways in which they are satisfied in a wealthy community growing wealthier. The enquiry is, therefore, full of interest for British people who are on the next lower rung of the ladder. And the wealth of fact and realism which American authors constantly apply salts our enjoyment of the dish. Many intriguing but very real hares are in fact started, with appetising names like " Clusters of complementary substitutes ", or " inconvenience of large scale consumption ".

The section opens with a general discussion of the nature of wants and choice, and of demand curves. While the importance of seller control in the case of differentiated goods is stoutly maintained, the author preserves a balanced judgment. For even the advertising seller has to bow finally before the ultimate decision of a people's Culture. It is conceded that the hedonistic calculus is actually an important element in our modern cultures ; and this is interestingly illustrated by our conduct in large recurrent purchases, and by the estimates of the poor. Homo Economicus is given some more hard knocks. What a pity that he has always been described as a " rational " person ! For " rational " gives us some bias towards believing that he is also real : whereas if we described him as purely logical, no one would for a moment consider his incarnation possible ! It remains for such as Professor Norris to clothe him with living flesh, a task for which she is completely suited. Even so, if we are to drop Homo Economicus as a norm, is this new god called Culture an adequate substitute ? Logic has final claims not possessed by any culture. But in reality, any culture must submit to constant *moral* criticism ; and in this, economic theory has its small part to play, as Professor Norris's final chapter illustrates.

There follows an application of Marshall's time period analysis of supply to the subject of demand. For the fixed plant defining the supply short period we have " a period so short that no changes in income occur, and no changes in established consumption rates occur ". Habits are, of course, the cement of any culture, and the complete adaptability of perfect competition has in the past given them no place in our theory. This gap the theory of monopolistic competition must try to fill. The possibilities so opened are examined with refreshing realism.

In the long period, on the demand side, the equipment of habits and income ranges can be changed. In fact our author does not develop the interesting subject of habits so fully as the other one. Probably an analysis of habits could be based only on a wide statistical foundation of budgets for different income ranges : this is indeed true for all processes that do not follow strictly logical sequences. Changes due to difference in income ranges are, however, interestingly examined. Following the monopolistic competition method, the demand for goods which partly compete, partly supplement each other, is analysed, as income and therefore the amount of specialised consumption vary. We buy a car on these principles, and a young lady equips herself with a formidable set of shoes. These analyses are full of realistic satisfaction and the best common sense.

Chapter IX deals with elasticity of demand, here rather surprisingly included under the long period analysis. The emphasis throughout is on the ubiquity and growing importance of variety and specialisation in wants and in the firms catering for them. In sum, when prices fall, we tend to buy better substitutes, or to fill in a more complete cluster of complementary substitutes, rather than to buy more of the same good. This is an interesting commentary on tendencies in the wealthiest modern economy. Differentiation grows with wealth. And the final conclusion—" it is high time that economists, like sociologists, took to the field " is bracing, as well as logically inevitable.

The final chapter is devoted to social criticism of the consumption system evolved by the culture previously described as sovereign. The flaws described are fairly common coin among economists, though their American setting gives them an interesting slant. The deadening effects of habit, especially in a monopolistic-competitive system, are carefully analysed. Cures mentioned are also old favourites—state advertising, state licensing and standards, the latter for consumption goods also. But about this there can be no just complaint. For, as our author says, planning " would have to be done with a good deal of discussion " : which is just to say that we must first decide whether we want democracy, and if so how much, before we can go further with the next question, how much economic efficiency, or how much of our own ways, we shall choose.

A. L. MACFIE.

Fluctuations in Income and Employment. (London School of Economics and Political Science. Studies in Economics and Commerce, No. 8.) By THOMAS WILSON. London: Sir Isaac Pitman and Sons, Ltd. 1942. x + 213 pp. 18s.

Dr. Wilson has set himself a double task: first, to reduce the welter of recent trade cycle controversy to a common denominator of agreed principles embodied in a list of " alternative hypotheses " (chapter X), and then, to test the synthetic theory thus distilled in interpreting industrial fluctuations in the U.S.A. between 1919 and 1937. It is an ambitious task which he tackles with courage, determination, and an evident flair for the application of abstract theory to concrete problems. If the results are, on the whole, rather disappointing, this is in no way due to lack of effort but possibly to lack of imagination.

Dr. Wilson sets about his task in a gratifying mood of eclecticism. He rightly recognises that " the dispute between the under-saving and the over-saving schools has been due almost entirely to different factual assumptions and much time has been wasted on useless discussions which might well have been devoted to a study of historical events". (31) Unfortunately, he fails to live up to his promise of eclecticism. This is not, as one might think, due to any predilection for under-consumption theory which, on the contrary, often comes in for severe criticism. It is apparently due to a lack of understanding on the part of the author for the significance of the existence of a variety of scarce factors in a world of fixed co-efficients of production. It seems never to have occurred to him that, apart from monetary stringency, scarcities other than of labour (for instance, of raw materials) may check a process of expansion.

Dr. Wilson's synthetic theory is further marred by a lack of appreciation for the distinguishing characteristics of a World of Change. Rather surprisingly for such an eager student of the New Era, he has little to say about technical progress beyond stressing its role in opening up new avenues for investment. Similarly, expectations are throughout treated as " data " and on a level of generalisation on which it must be hard to find anything useful to say, while his use of the concept of elasticity for long-run-expectations raises serious methodological issues. By contrast, in the one place where the author descends from his high level of abstraction, viz., in discussing the case of the durable goods industries, he suddenly cuts short what looks like a very promising approach by warning us that if we walked on we might " unwittingly succeed in explaining why no cyclical fluctuations should occur " (68)!

While Dr. Wilson remains sufficiently faithful to his avowed principles to admit at least the possibility of under-saving crises, the attempts to work the causes and conditions of this type of crisis into a coherent theoretical pattern centring in the Austrian theory of industrial fluctuations receive in chapter VI most ungenerous treatment. In spite of the emphatic protestations of almost every exponent of the

Austrian theory that in a dynamic world there can be no such thing as a homogeneous factor, "Capital", Dr. Wilson in discussing it uses a diagram (52) on which constant returns to scale are assumed! The Austrian theory is then dismissed on the grounds that in order to validate it "we must assume a special type of production function which is non-homogeneous. But there is no reason why production functions should have this shape" (53). Needless to say, homogeneous production functions have no place in the theory of industrial fluctuations but belong to the realm of pure statics, while dynamic theory knows no homogeneous factors such as "indirect labour". For it industrial equipment is an aggregate of instruments of production of various ages and degrees of obsolescence and, hence, of productivity. Dr. Wilson's argument is thus seen to rest on a confusion between statics and dynamics. In the latter part of the same chapter confusion is carried a stage farther when Dr. Wilson confuses the factors limiting the size of the firm with the factors limiting the expansion of the economic system. After this we are not surprised to learn that he denies altogether the possibility "that the demand for consumption goods and the demand for investment goods can move in opposite directions" (58); we have to remember that his is a world in which "real" scarcities (other than of labour) do not exist.

In the second, empirical, part of his book, Dr. Wilson is on much safer ground and his conclusions are in general unexceptionable. Everybody will agree that 1920 was a typical post-war crisis held up for a time by government borrowing and exports. In studying the causes of the crisis of 1929 Dr. Wilson is at his best in his detailed demonstration that scarcity of credit had no part in it (144–52), or in exposing the cruder versions of the acceleration principle. ("It seems to emphasize the wrong variable and to divert attention from those that really matter," 126). The effect of the Wall Street boom on consumption is perhaps not given sufficient emphasis and the raw material situation is strangely neglected. The chief cause of the collapse he finds in the exhaustion of investment opportunities, particularly in building. It is possible to accept his broad conclusions and yet to wonder whether this explanation does not raise more problems than it purports to settle. Investment opportunities, after all, are never simply "there"; they are the outcome of human will and effort. Can economics as a social science afford to ignore the factors determining whether such effort is to be undertaken successfully?

L. M. LACHMANN.

The Fundamental Principles of Mathematical Statistics with Special Reference to the Requirements of Actuaries and Vital Statisticians and an Outline of a Course in Graduation. By H. H. WOLFENDEN. Published for the Actuarial Society of America by the Macmillan Company of Canada, Ltd., Toronto. 1942. xv + 379 pp. $5.00.

Text-books on statistics generally fall into two distinct classes;

those which deal with elementary statistical methods and the collection of data are in one class, whilst the second class consists of treatises dealing with advanced statistical theory. Books in the first class are useful mainly to the economist and administrator, those in the second class are generally addressed to the experimental biologist or the agricultural research worker. But, as Dr. Wishart has pointed out (*Jour. Roy. Stat. Soc.*, 1939, Pt. IV) no text-book of statistics which explains the mathematical foundations of modern statistical methods adequately, has yet been written. Authors of statistical text-books generally relegate their mathematics to an appendix and even then content themselves with the simpler proofs, leaving the student to take more complicated matters on trust. This rather unsatisfactory state of affairs is largely due to the difference in training between the producer of statistical theory, generally a highly trained mathematician, and the consumer, whose mathematical equipment is in most cases only rudimentary. Mr. Wolfenden whose book is addressed mainly to actuarial students is fortunate, in that he can presuppose that his readers have a certain amount of mathematical knowledge, and his book may be regarded as an attempt to bridge the gap between mathematical theory and its statistical applications.

Nevertheless, it is doubtful whether the author has succeeded in producing a book which will be of use to the ordinary student who is reading it without any previous knowledge of the subject, and without guidance. This is largely due to the rather curious arrangement of the book. It is divided into four sections: the text (148 pages), notes on the historical development of statistics (25 pages), a section on Mathematics and Interpretation (80 pages), and a section on Applications (82 pages). Copious references to the last three sections are included in the text. Now the relegation of mathematics to the appendix is justifiable if *all* mathematics are kept there, and if the author is content to leave only the most important formulæ in the text. In this book, however, some of the mathematical proof are in the text, some are in the appendix, and the reader is constantly required to refer from one to the other if he is to follow the reasoning. If he wants to see the methods applied to actual data he has to refer to yet another place. The text itself is very concise, in places it is indeed almost in note form. All this makes the book difficult to read for the private student, though it would probably be valuable as a supplementary text to a lecture course.

As regards the contents, a larger amount of space than is usual in such works is devoted to the theory of curve fitting and graduation. This is no doubt due to the fact that the book is mainly addressed to actuaries. Hardly any mention is made of correlation theory and the reader is referred to the standard works on the subject. Another strange omission in a work which is addressed to vital statisticians, amongst others, is the complete absence of any mention of the work done on Population Dynamics by Lotka and others. On the other hand most of the modern tests of significance are explained and it is pleasant to see that the author, unlike some others, continually reminds the reader of the limitations of these tests due to the assumption of normality in the parent population.

Our criticisms have been criticisms of form and arrangement rather than of substance, but in a text-book of this kind form of presentation is after all one of the most important factors. If Mr. Wolfenden were to rearrange his material and expand his text a little, the usefulness of his book would be greatly increased.

E. GREBENIK.

Three Aspects of Labour Dynamics. By W. S. WOYTINSKY. Washington: Committee on Social Security, Social Science Research Council. 1942. xiv + 249 pp. $2.50.

Mr. Woytinsky is primarily a statistician, and in his book on *Three Aspects of Labour Dynamics* he analyses the statistics for the United States in order to throw light on changes in labour turnover; the turnover of the unemployed; and "additional workers" in depressions.

Labour turnover in the decade before the war of 1914–18, when the demand for labour was increasing, was very high in America—the author takes 10 per cent. per month as a normal rate. But there were wide variations in different industries, and in general the rate was much lower for skilled than for unskilled workers and lower for employees of long standing than for recently hired workers. Sample surveys showed that "an unstable group which constituted about 11 to 13 per cent. of all workers was responsible for nearly three-quarters of all separations". Mr. Woytinsky points out that although the high rate of turnover before the war was an economic waste from the point of view of employers, yet "it had certain advantages in facilitating the distribution of new workers and in meeting the demand for labour in rapidly expanding industries. The presence among employed workers of a continuously changing "unstable" group assured great flexibility in the labour market. A worker might change his job several times before he found one which suited him, but after having found it he was quite likely to become part of the "stable group" . . . This voluntary labour turnover was possible only because there was practically no permanent unemployment in the country. At the same time it was, to a certain extent at least, a defence against the development of unemployment during occasional lapses in demand for labour. Unless the recession came suddenly, employment managers did not have to lay off workers in slack times; they could reduce their working force simply by postponing the replacement of workers who quit voluntarily, and often this procedure appeared preferable to lay-offs. It may be added that voluntary labour turnover is one of the most important of the practical liberties of the worker, and it is one that would, to say the least, be imperilled under any totalitarian economic system.

During the prosperous years which ended with the collapse of the boom in 1929, labour turnover averaged only about 4 per cent. per month—a sign of the growing rigidity of the labour market. But it was still the case as in the pre-war period, that about 75 per cent. of the separations were " quits ", i.e., were voluntary, and only 25 per cent. were dismissals. After 1930, however, this relationship was reversed, and though the turnover rate itself was much the same as in the '20 ies, of the separations 75 per cent. were due to dismissals and 25 per cent. to quits. Amongst other points of interest Mr. Woytinsky shows that the fact that labour turnover is less in the larger than in the smaller establishments, is due, not to the greater attachment of the workers to the large firms (quits are more numerous in the large than in the small firms) but to the smaller proportion of dismissals owing to the greater opportunity afforded by the large firm for shifting workers from one department to another inside the same firm.

The second inquiry into turnover among the unemployed is less interesting in its results, as it merely confirms the generally accepted conclusion that the longer a worker has been unemployed the less likely is he to get back into employment. In this connection, a classification of the duration of unemployment by age groups would have added to the value of this part of the work.

The third inquiry is concerned with " additional workers " in depressions, i.e., with those persons who come into the labour market because the usual breadwinners in their families are unemployed, and who, if this were not the case, would not seek work. The problem of defining and enumerating " additional workers " in this sense is a very complex one, and Mr. Woytinsky shows great ingenuity and skill in devising a suitable technique for dealing with it. In recent years the number of these additional workers has been very large in America, and their existence is one of the reasons for the surprisingly large discrepancies in different estimates of the total volume of unemployment there at a given time. His calculations suggest that in the worst period of depression, from 1931 to 1933, the ratio of additional job-seekers to the unemployed usual workers was 1 to 4 or 1 to 5; while in 1937 it may have been 1 to 7. The ratio in the latter year would imply that about 900,000 to 1,000,000 additional job-seekers, in families whose usual breadwinners were unemployed, had registered as wanting work.

Mr. Woytinsky's book is to be commended to those who are concerned with the study and interpretation of labour statistics.

C. W. GUILLEBAUD.

Public Finance. By ALFRED G. BUEHLER. McGraw-Hill Publishing Company, Ltd. Second Edition. 1940. xx + 846 pp. 28s.

Professor Buehler has expanded the material on taxation and budgetary procedure in this, the second edition of his book on Public Finance, first published in 1936. The book is in the standard text-book tradition of collected fact and simplified statement. Each chapter closes with references for further reading, but Turgot, Adam Smith, Edgeworth, List, Marshall and Keynes do not appear.

The descriptive chapters on various aspects of the finance of Federal, State and Local Authorities in the United States are good, and contain some useful tables. How Constitutional limitations have hedged fiscal development is well brought out ; also the comparative importance in time of peace of local as compared with federal finance, a fact which is too little appreciated. Thus, although federal expenditures increased relatively under the New Deal, they still represented under 50 per cent. of total public expenditures in the years immediately before the war, and federal taxation in 1938 represented less than 30 per cent. of total taxation. Mixed general property taxes, assessed on widely differing principles of valuation in each State, accounted in that year for no less than one-third of total tax revenue and, at roughly the same yield, for no less than one half of total tax revenue in 1932. Professor Buehler rightly points the need for wholesale reform of this antiquated taxation, the evils of which—glaring inequity, and default when the levy becomes heavier than the traffic can bear as in the great depression—have long been recognised. Reform is however especially difficult, if all the more important, in an economy in which income and the capital value of real and personal property undergo such violent shifts as they do in the United States.

Professor Buehler's treatment of his subject apart from his survey of the American scene, must be judged according to the view which may be held of undergraduate interests and capacities. What Rome did or Europe does, and the conclusions reached by political economists of varying date and distinction, are set out like so many jig-saw puzzle pieces with nice clean edges. But must not this method of teaching, designed though it is to give perspective, inevitably defeat itself, since in fact the pieces belong to no single picture ? Assiduously practised feats of memorising can hold them together, but thinking and feeling cannot. The political philosophy and historical power of the purse in a particular age and place, constitute a whole which must be studied as a whole to create a sense of reality. And the full logic which compels particular conclusions from given premises is required, if analytical faculty is to be exercised on the tougher technical problems. It is heroic to condense J. A. Hobson, Marshall, Seligman and Chamberlin into one short chapter on the shifting, capitalisation and incidence of taxation of various types in theory and practice, but argument and conclusion do not always fit, and the average student must find himself in a maze. The total amount of knowledge which Professor Buehler has packed between two covers is impressive. But should it perhaps be regarded as a reserve store,—and the beginner learn to make the subject his own, say by delving into the ways in which his home Town

Council get and spend money, browsing in the life and times of Alexander Hamilton, and sweating over Ricardo's Essay on the Sinking Fund ?

M. T. Hollond.

The Managerial Revolution, or What is Happening to the World Now. By James Burnham. London: Putnam. 1942. 271 pp. 7s. 6d.

What in the title of this interesting book is described as the " managerial revolution " is to all intents and purposes the phenomenon of the totalitarian transformation of society which the author's " historical theory " makes him regard as the inevitable sequence of capitalism. If one grants the author's initial premises, that under " capitalism " large scale unemployment is inevitable and that therefore the tendency towards complete central direction of all economic activity must continue, his conclusions are probably inescapable. The picture of the " managerial society " is realistically and skilfully drawn and deserves careful study, particularly by those who by their desire for such a system make its eventual establishment by no means unlikely. It is made specially interesting by the evidently Marxist background of the author's argument which leads him to very un-Marxist conclusions, and by the fact that his exposition is so largely based on experiences in the United States during and since the New Deal.

While the author attempts to paint a strictly detached and scientific picture of what he regards as the inevitable developments, and while the picture which he paints of this future is certainly not attractive, his sympathies are yet clearly with the " new " as against the " old " system. It is " the Germany of 1933 and of now " which is " the nuclear first stage in the development of that super-state of the future " which he sees coming, and the " social systems of England and France at the outset of the second world war were remnants of the past, Germany's a start toward the future ". But Russia is " the nation most advanced towards the managerial structure ", though she is likely ultimately to be absorbed by the German-dominated European block. The author seems to have little doubt that Germany will ultimately emerge victorious from the present conflict (the book was first published in America in 1941 !) and in his opinion " Germany had, of course, to accept the challenge " of the backward Western powers, while the war still continues only because " the English capitalists weighed the costs and decided to keep on fighting ".

One of the most illuminating passages in the book is a pen-picture of the type of men who run the New Deal and in whom the author sees the type of the future managers of society. Since this passage seems also well to describe the background against which the doctrines of the book ought to be seen, it will bear quoting at some length: " The firmest representatives of the New Deal are not Roosevelt or other conspicuous ' New Deal Politicians ', but the younger group of administrators, technicians, bureaucrats, who have been finding places through the state apparatus: not merely those who specialise in political technique, in writing up laws with concealed 'jokers', in handing Roosevelt a dramatic new idea, but also those who are doing the actual running of the extending government enterprises: in short, managers. These men include some of the clearest-headed of all managers to be found in any country. They are confident and aggressive. Though many of them have some background in Marxism, they have no faith in the masses of such a sort as to lead them to believe in the ideal of a free, classless society. At the same time they are, sometimes openly, scornful of capitalists and capitalist ideas. They are ready to work with anyone and are not so squeamish as to insist that their words should coincide with their actions and aims. They believe that they can run things, and they like to run things."

There are several points in the detail of the argument, such as the presentation of the rise of the managerial class as a cause rather than as an effect of the transformation of society, or the treatment of competitive capitalism as a short phase rather than the greater part of the known history of Western civilisation, with which one might quarrel. But as, if one accepts the initial premises, these minor points are not likely to affect the conclusions, they are hardly worth dwelling upon. However much one may disagree with the asserted inevitability of the developments the author sketches, its possibility and even likelihood cannot be gainsaid. The book is one which one hopes will be widely read by intelligent and thoughtful people, though there is every reason to fear its effects on those who are likely to be swayed by a plausible exposition of supposedly "inevitable tendencies". And though the true part of the author's thesis is probably little more than the contention, advanced by Hilaire Belloc thirty years ago, that "the effect of Socialist doctrine on Capitalist society is to produce a third thing different from either of its begetters —to wit, the Servile State", its exposition in the frightening realism of the author's setting may nevertheless prove to be of considerable importance.

F. A. v. HAYEK.

The Creation of Purchasing Power. By DAVID MCCORD WRIGHT. Harvard University Press. 1942. xiv + 241 pp. $3.

The sub-title of this book, "A study in the problem of economic stabilisation", describes its purpose with greater accuracy than the name which the author has actually given it. It is concerned with the creation of purchasing power not as an end but as a means; its primary interest is a synthesis of the real and the monetary aspects of the problem of obviating cyclical and secular unemployment.

Professor Wright approaches his subject with a confessed leaning towards the under-consumptionist outlook, and the logic of his argument impels him to quarry for constructive suggestions amongst a welter of currently-advocated panaceas. He reviews these under three main headings :—changes in bank policy ; velocity stimulators ; purchasing-power injectors. Typical schemes considered are : under the first heading, 100 per cent. Money ; under the second, the Townsend Plan ; under the third, Social Credit. The discussion of each is critical, but sympathetic. The brevity of the analysis is, however, sometimes dangerous ; for example, the paragraph (pp. 162–163) on the theoretical basis of Social Credit scarcely makes it clear, even to the informed reader, that the only sound features of the Douglas scheme are those which it shares with many others.

The argument pursued through this ordered scheme of popular remedies can be summarised as follows : Redistribution of the existing income is not enough. As a remedy for cyclical disturbances it is too sweeping ; for secular depression, too prejudicial to the marginal efficiency of capital. Hence some form of addition to income is required. But none of the orthodox palliatives—extra bank-credit, unemployment benefit, deficit financing and the like—are adequate. What is needed is a reinforcement of expenditure strong enough to offset not only the discontinuance of income due to unemployment, but also the stagnation of income in hoards. This stabilisation can only be achieved by injecting fresh purchasing-power at critical moments.

As to the method of financing to be adopted, Professor Wright rejects both the creation of unlimited paper-money (because of its inflationary effect on bank reserves) and the indefinite expansion of the National Debt (because of the tax-frictions caused by the transference of interest). He is therefore constrained to suggest a middle course, involving the issue of interest-free Government paper capable of constituting only 100 per cent. (not fractional) reserves in the hands of the banks. Since the general circulation of this restricted paper would, as he sees, undermine public confidence in the currency, he would limit its use to expanding the basis of bank operations. But the mere creation of such " credit certificates " would be insufficient to secure an expansion of purchasing-power, and some technique of injecting the latter is also required. On this point, Professor Wright prefers not to isolate any individual method as peculiarly appropriate. He commends rather a combination of tactics, varying with the stage of the trade cycle, the intensity of the secular depression, and the extent to which technical discontinuities are affecting investment.

His argument is most original in its emphasis on the inadequacy of orthodox monetary methods to counter the frictions and lags which inhibit the smooth flow of a dynamic circulation. Within this framework his general recommendations follow fairly familiar lines—amounting, in general terms, to taking steps to increase purchasing power in times of incipient depression and taxing it away again as recovery gains strength. He realises the difficulties of diagnosis without being able to contribute much towards their solution. He recognises, also, the particular problems of his own kind of solution—the dilemmas that wholly to maintain the purchasing-power of newly-unemployed persons may involve giving them " doles " equivalent to their wages; and that wholly to offset the effects of temporarily sterile hoards may necessitate so expanding consumption as to be inconsistent with the long-run investment requirements of the community. Here again, however, he is able to suggest no conclusive answers.

His book thus constitutes an interesting but rather elusive contribution to a subject of great practical importance.

J. K. HORSEFIELD.

Plan for Africa. By RITA HINDEN. George Allen and Unwin, Ltd. 1941. 224 pp. 7s. 6d.

Under this somewhat misleading title Dr. Hinden has published a detailed economic survey of two African territories, Northern Rhodesia and the Gold Coast. The material on which she draws is partly documents published in London, but still more the many official reports published in the colonies themselves, which contain the most valuable information but are not easily available in this country. In ransacking these scattered sources to present these economic surveys the author has performed a valuable service.

The two territories are well chosen representatives. Northern Rhodesia has been one of the poorest territories in Africa, the Gold Coast one of the richest. Northern Rhodesia has been a white man's country, developed by white men for white men; the Gold Coast is a black man's country, its wealth based on the output of African peasant farmers. The contrasts are instructive.

Northern Rhodesia was for many years governed by the British South Africa Company, but that company lost all its government functions by agreement in 1923, when the territory became a crown colony. The object the company had principally promoted, the settlement of white immigrants, continued however as the basis of policy. The company had built a railway through the centre of the colony. The new government decided that all lands alongside the railway were to be cleared of Africans, who were to have the less accessible lands elsewhere. In the years when this policy was being applied, 1924–1929, a big influx of European settlers was confidently expected. It has not materialised. European agriculture in Northern Rhodesia has proved to be a failure, bolstered by subsidies, and deliberately protected against African competition. The lands from which the African has been moved lie empty, and tsetse fly rapidly takes the opportunity to make them uninhabitable. Meanwhile the African has been crowded into small, waterless reserves, removed from road and rail, and undergoing rapid soil erosion in consequence of population pressure. In expectation of the influx of settlers and a shortage of African labour, steps were taken in 1929 to tie such Africans as remained in the " European areas " to their masters.

The Natives on Private Estates Act of that year prohibits the leasing of land to natives for a cash rent, and requires that Africans settled on European farms must pay their rent in labour service. The influx not having materialised, it has not proved necessary to apply this piece of mediæval serfdom. The competition of the African peasant, however, was found to be a menace. The principal crop, maize, is grown by both white and black. The local market is protected, its price being much above that received for the part of the crop which is exported. In 1935 it was decided that the entire crop must be marketed through a government board. 75 per cent. of the local market is reserved by law for the Europeans, although their output in the first year was only 58 per cent. of the whole, and is decreasing steadily in proportion as the Africans adopt maize as a cash crop. The African labourer is discriminated against no less than the African peasant. There is no written colour bar, but a no less effective unwritten colour bar withholds from Africans all skilled jobs in the mines, on the railways and in government employ. When the railway train crosses the Northern Rhodesian frontier into the Belgian Congo, the white British driver hands over to the black Belgian; when it returns the black man must get down since no African is permitted to drive a train in this British territory. Such is the civilisation which British trusteeship has brought to Central Africa. The Colonial Office here in Downing Street is beginning to be ashamed of it. Rather belatedly it has decided that the Africans are to have more land, but they are still to be excluded from areas which may in the future prove suitable for European settlement. It has asked the mining companies to consider a gradual relaxation of the colour bar, but itself admits that it expects no early results from this request. The maize pool is to continue. Northern Rhodesia is only a picture on a small scale of what British settlers are doing to Africans in Kenya, in Southern Rhodesia, and in South Africa.

The Gold Coast provides the contrast. Mosquitos and an unusual Governor kept white settlers out of this colony. Its wealth is founded on the efforts of a black peasantry. Dr. Hinden indicates some of their problems—debt, plant disease, marketing inefficiencies—and blames the government for lack of foresight in planning the economic development of the colony. Yet the fact remains that this is the wealthiest part of Africa. There is no land shortage or segregation into reserves to provide for white settlement. There is no industrial colour bar. The comparison with Northern Rhodesia is as cheese to chalk.

The moral? European settlement in Africa is a menace to African progress. The point is of immediate relevance to the proposals for the future of South and East Africa now being discussed. General Smuts wishes the whole territory virtually to be handed over to South Africa. Premier Huggins of Southern Rhodesia does not want to be swallowed by his southern neighbour; he accepts, however, the segregation policy, has imposed his own vigorous racial discriminations, and now asks for amalgamation with Northern Rhodesia and Nyasaland to widen his own segregationist empire. Kenya wants to amalgamate with Uganda and Tanganyika, become a dominion, and be free to adopt South African and Rhodesian policies. We do not know what bargains these statesmen are making with Mr. Churchill. There can be no doubt that each of these amalgamations should be vigorously opposed if the further oppression of Africa is to be checked.

There are other colonial problems which these two territories illustrate. One is the dominance of big combines in colonial trade, through whose bottleneck the peasant's crops as well as his imports must pass, and pay the appropriate toll; giants like Lever Bros. in West Africa, Harrisons and Crossfield in the Indian Ocean, and Burns, Philp in the Pacific. There is the incidence of international restriction schemes, which have brought development to a standstill in Northern Rhodesia and other colonies; tied up with these are the great fluctuations in colonial incomes at the behest of the trade cycle. There is the double income tax arrangement; in effect no colony may charge to companies more than half the rate paid by companies operating in the United Kingdom. Not least important are the problems associated with mining; mineral products are 92 per cent. of the exports of Northern Rhodesia and one-third of the exports of the Gold Coast. In Northern Rhodesia mining has proved profitable beyond all expectations. But not to the Africans. Its product in 1937 was valued at £10,704,000. Native wages were £250,000. Who gets the difference? The white workers got £1,000,000; they are the most highly paid in the world. The British South Africa Company, which has been allowed to acquire for a song the entire mineral rights of the colony, got £300,000 in royalties. Profits to shareholders were about £5,000,000. The British and Colonial governments shared equally an income tax of 5s. in the £. The shareholders had not done so well before; they have done better since, have had the original investment repaid, and will reap a fortune in the future. So also in the Gold Coast the African must look on while millionaire mining magnates extract and export the wealth of his colony, leaving so little in return.

Dr. Hinden does not try to provide detailed solutions for all these problems. She calls for development of the co-operative movement, for nationalisation of mineral resources, and for concentration on domestic rather than on export markets. But what impresses her most is the need for capital to develop the public and social services of the colonies. She asks that the sum granted under the Colonial Development Act should be ten million pounds a year instead of five. This is a modest demand, much less than the fortunes which private Englishmen have made in the colonies in copper, gold and tin, rubber, sugar and trade. She wants it spent according to a plan.

Experts have been sent to the West Indies to formulate such a plan; presumably at some point the Colonial Office will realise that East and West Africa call for similar measures.

The author's plan is all right as far as it goes, but it leaves too many basic issues untouched. In particular, the whole story she tells emphasises how impossible it is to separate economic policy from its political background. It is a story which reveals the failure of governments to appreciate the needs of the people, and the absence of sympathy between them. This is clear enough in Northern Rhodesia, where discrimination against the African has been the official policy. But even on the Gold Coast, government and people have been in conflict on such important issues as the control of mining magnates and trading combines, the provision of education, the right of Africans to employment in the civil service of their own country, and the right of Africans to participate in government deliberations. This last is the crucial problem. In Africa, as in Malaya, the administration is not rooted in the people. The system of "Indirect rule" allows the African some scope in matters of local government, but in the central government, where the major decisions are made, he has no place, except as a powerless critic. It is an alien government, administered by rather snobbish alien officers, conscious of their racial superiority, claiming as their ultimate aim the training of Africans for self-government, yet deliberately excluding them from responsible positions in the machinery of the central government. These are not regimes in which Africans make decisions and manage their own affairs with the help and advice of Europeans. They are regimes where the African remains a mere onlooker and unwelcome critic.

Everybody now talks about the need for a colonial charter. Africans are amused by this discussion. They have heard so often that they are being trained for self-government "as soon as possible" that they would regard any such further declaration as mere humbug. It is an undated cheque, and names no bank for presentation. What Africans want to hear about in a charter is what is to happen to the colour bar; are they still to be confined to reserves to please European settlers; are mining magnates still to make off with their gold, their copper, tin and diamonds; must they still serve the trading combines; are the central organs of Government, the Legislative and Executive Councils where everything important is decided, still to be bodies from which they are excluded, or in which at most they appear only as despised and over-ruled minorities? These are the real issues in colonial policy. Will the British people dare to face them?

W. Arthur Lewis.

Parents Revolt. A Study of the Declining Birth-Rate in Acquisitive Societies. By R. M. TITMUSS and K. TITMUSS. With an Introduction by BEATRICE WEBB. London: Secker and Warburg. 1942. 128 pp. 3s. 6d.

This book attempts to give a popular explanation of the demographic facts which confront us to-day, together with an analysis of the causes and consequences of a declining birth-rate. One of its authors, R. M. Titmuss, is already well known for his contributions to the discussion of population questions. By all appearances he is also a man who feels strongly about the lack of interest in this problem, manifested by official and unofficial quarters alike. His qualifications for writing a book on the subject are undoubted, and no fault can be found with his treatment of the purely demographic facts. The summary of Dr. Innes's work on differential fertility in this country is especially useful, as it is not easily accessible. But when the authors leave the demographic facts and embark on their interpretation and on a sociological analysis of the causes of the reverse in population trends, it is difficult to escape the conclusion that they have let their feelings run away with them.

The sub-title of the book indicates the authors' general point of view sufficiently clearly. The reversal of the trend in the birth-rate can be explained by the increasing severity of the competition to keep up one's standard of living. In this social struggle the procreation and rearing of children becomes a disadvantage. A quotation from Kipling: " He travels the fastest who travels alone " is taken as a good indication of the modern attitude towards family responsibilities.

It is difficult not to have a certain amount of sympathy with this point of view, but the authors have not made the best of their argument. This is largely due to the style and method of presentation they use. Mrs. Webb in her preface talks about a series of " brilliantly graphic chapters ". Perhaps the following passage is a good example of this:

> " . . . the rich preached sermons to the poor on how to work hard in the competition, practice abstinence and thrift to the nth degree, educate themselves, and above all fear God. By the twentieth century the emphasis shifted somewhat so that aspirants to success are now encouraged " to work hard and to play hard ". God, it must be presumed, has been found to be redundant. A decline in spiritual values is consistent with a rise in competitive philosophy. . . . By the second half of the century the discovery was made that man—not God—was responsible, and this discovery was found to conflict with the injunction to fear God. Consequently, organised religion had to take a back seat and spiritual values receded as materialistic conceptions forced their way to the front."

I do not think it is unfair to select this passage from the book. A large part of the sociological analysis is written in the same angry and slightly excited tone. There are a number of irrelevant attacks on certain concepts in the book; most of the first chapter is of that type. It seems to me that it is dangerous to lay a book of that type before the general public who are not acquainted with the details of the problem. Catchy phrases have a habit of sticking in people's minds, long after the detailed arguments and the qualifications to them are forgotten. A popular book on the population problem is urgently needed, but it needs to be written with much more detachment and lack of passion than the work under review, if the public is to be taught to think clearly on the population question. This book is written in anger; it appeals to the feelings and not to the brain. And thinking with one's feelings may have results not very different from those obtained by thinking with one's blood.

E. GREBENIK.

Monopolistic Competition and General Equilibrium Theory. By ROBERT TRIFFIN. Cambridge, Mass.: The Harvard University Press. 1940. xiii + 197 pp. $2.50.

The aim of this book is to re-state the theory of monopolistic competition and "carry the whole subject on into new and uncharted lands." Mr. Triffin's specific purpose is to free the monopolistic and imperfect competition theories from the "particular equilibrium economics of Alfred Marshall", in which, owing to "the theoretical tradition dominant in both countries", it has hitherto been enfettered (in the United States and England alike), and to "re-state the whole problem in terms of the Walrasian, general equilibrium system of economic theory".

His main contributions towards this end are the proposed abolition of the concept of the "industry" or "group", which forms the raw material of both Mrs. Robinson's and Professor Chamberlin's theories, and a new classification of market situations according to the nature of the interdependence between the different firms. He argues, up to a point convincingly, that once we abandon the assumptions of the perfect market of classical theory, the rigid division of the economic system into a number of separate "industries" loses its validity. Different firms produce things which are more or less close substitutes to one another; and there is often no marked "gap" to separate one set of competing firms from another set. "Competition may be keener between Ford and Rogers Peet [a tailoring firm] than between Ford and Rolls Royce" (p. 88).

It was the same difficulty which led to the suggestion that the concept of "industry" should be replaced with that of a "competitive field" the boundaries of which need not be co-extensive to all members, or rather, might vary with the position of any particular firm within the field. Mr. Triffin, however, is more radical: he wants to abolish not only the concept of the " industry ", but also any alternative concept of the " group ", and to regard each firm simply as " part of the whole economic collectivity ". Nothing is gained, according to him, by limiting the analysis to a " group of close competitors " ; " in the pure theory of value the group and the industry are useless concepts ". Whether this is so or not, clearly depends on what the " pure theory of value " is for ; and on this last point we are unfortunately left in the dark, for Mr. Triffin does not tell us.

His principle for classifying market situations (the " nature of external interdependence ") is the nature of the cross-elasticities of demand (the elasticity of sales of one firm with respect to the change in price by some other firm). Under pure competition, these cross-elasticities must be either infinite or zero (according as the " other firm " is situated in the same industry or some other industry) ; under pure monopoly, they must all be zero ; under imperfect competition they must have a positive finite value—in conditions of " polypoly " they are small, under " oligopoly " they are large. So far I am fully in agreement[1] ; but I believe Mr. Triffin is mistaken when he thinks that this concept of cross-elasticities between *individual* firms enables him to dispense entirely with *groups* of firms. As far as individual cross-elasticities go, we cannot say, for example, whether a particular firm's position approximates that of polypoly or of monopoly : in *both* cases the individual cross-elasticities will be small. But in the case of polypoly there is (and in case of monopoly there is not) a *group* of firms whose prices jointly exert a large influence on the firm's sales ; the " group " being a number of firms which can (and should) be lumped together, because their prices always move together.[2] As Professor Hicks has shown,[3] a " collection of physical things can always be treated as if they were divisible into units of a single commodity so long as their relative prices can be assumed to be unchanged, in the particular problem in hand ". It is this homogeneity (or virtual homogeneity) of price-movements which defines the nature and the boundaries of any particular " group " or " industry " ; and it is the elasticity of a firm's sales with respect to the prices of such groups, and not merely the elasticity with respect to the price of any one firm, which determines the nature of " external interdependence ".

In the later parts of his book, Mr. Triffin deals with certain controversial issues, in particular the question of freedom of entry, and the shape of the cost curve, under imperfect competition. In the original exposition of his theory, Professor Chamberlin assumed full freedom of entry. He later on modified his position in this respect and asserted that full freedom of entry is quite incompatible with monopolistic competition ; so that, but for restrictions of entry, competition would necessarily be pure.[1] This view has been criticised by the present writer[2] on the ground that it ignores that pure competition requires the co-existence of a large number of firms, all producing an "identical" commodity; and in any particular case, the demand for the commodity may not be large enough for it to be produced by a "large number" of different firms—which is only another way of saying that the commodity could not be produced on a scale small enough to enable the requisite number of firms to produce it simultaneously. Hence the existence of monopolistic competition may be due to one of two causes—restriction of entry or decreasing costs of production—of which the second may be quantitatively much more important than the first.

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[1] Indeed I suggested this classification myself in reviewing Mrs. Robinson's and Professor Chamberlin's theories, cf. ECONOMICA, 1934, pp. 335–340, and ECONOMICA, 1935, pp. 35–39.

[2] Not because these prices are directly dependent on each other (which they might be, but need not be), but because they are determined by the same set of influences.

[3] *Value and Capital*, pp. 33–34.

Mr. Triffin disagrees with this view. The controversy hinges on the proposition that not only are decreasing costs incompatible with pure competition but *the absence* of decreasing costs is equally incompatible with monopolistic competition, if restrictions of entry are assumed absent. For if costs are constant or rising, profits can never be eliminated through the entry of fresh competitors so long as prices are above marginal costs; the entry of new competitors would therefore continue until the scale of production of the individual unit, and its influence on prices, becomes sufficiently small for pure competition to be established. Hence "if full divisibility of all factors is assumed and consequently economies of scale are completely absent, the free play of economic forces would necessarily establish perfect competition".[3]

Mr. Triffin, quoting this sentence of mine, retorts: "Far from this being the case, it can be shown that *rising* marginal costs are a necessary condition of equilibrium under pure competition, and that it is even more than a condition of equilibrium; it is a basic requirement of the definition of pure competition itself" (pp. 155–156). Now this is a logical *non-sequitur*. The argument showing that constant or rising costs are incompatible with monopolistic competition cannot be refuted by saying that constant or falling costs are incompatible with pure competition—the two statements do not contradict each other. All that his own argument would prove (if it were correct) is that *constant costs*, being equally incompatible with either perfect or imperfect competition, have no right to exist and can be ruled out.

This last conclusion would be disturbing enough, but fortunately the argument which leads to it is not correct. Mr. Triffin's assertion that "rising costs are indispensable to the very definition of pure competition" (p. 156) is based on a confusion between the concepts of "pure competition" and "stable equilibrium". It is the latter, not the former, which involves rising costs, *by definition*; while stable equilibrium is by no means a necessary adjunct of pure competition, however desirable we may think that it should be. If there is pure competition and costs are constant, and not rising, there will be neutral equilibrium—with all the unpleasant consequences (on the reaction mechanism of the system) which this entails.[1]

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[1] *Quarterly Journal of Economics*, 1937, pp. 556–567.

[2] *Q.J.E.*, 1938, pp. 522–525.

[3] For a detailed exposition of this argument, cf. *Q.J.E.*, 1938, pp. 516–522. Professor Machlup in a recent article ("Competition, Pliopoly and Profit", ECONOMICA, February and May, 1942) puts forward a similar argument.

The trouble with Mr. Triffin is that his journey into "new and uncharted lands" never gets him beyond the stage of definitions and classifications. Of a *theory* of monopolistic competition there is very little to be found—unless it be the sort of statement that marginal costs will be equal to marginal revenue, with which we were already familiar. There are plenty of unsolved problems in the field of imperfect competition—such as the question of what determines the type of competitive situation which will develop in any particular market, how the different kinds of competitions compare as regards efficiency, and, last but not least, what determines *prices* under imperfect competition (once we go beyond the purely formalistic statement that the position of marginal revenue determines them)—but Mr. Triffin does not deal with them; he does not even drop any hints that he is aware of their existence. There is heteropoly, circular and atomistic, and homeopoly, circular or atomistic, pure monopoly, heteropsony and homeopsony (also circular and atomistic)—but we are not told how they come about, what they do, whether they lead to high prices, or low prices, to stable or unstable situations, whether they should be encouraged or discouraged; for Mr. Triffin they are like stamps, worth collecting just for their own sake. Perhaps it is his extreme concern for the "ethical neutrality" of economics which prevents him from going beyond the task of mere definition and classification. Thus he condemns the section of Professor Chamberlin's book dealing with "equilibrium with excess capacity" as depending on "assumptions implying a radical departure from the methodology of 'pure' economics" (p. 125). In that section Professor Chamberlin showed that monopolistic competition of certain kinds leads to waste and inefficiency—while Mr. Triffin, under the cloak of "ethical neutrality", manages to pass over this aspect of the problem altogether. In fact, as several writers have recently shown,[2] judgments relating to efficiency are not incompatible with the most scrupulous observance of the code of "ethical neutrality". But it is interesting to note that economists like Mr. Triffin who are confused on this point are usually those who regard this question of "ethical neutrality" as a problem of first-rate importance.

NICHOLAS KALDOR

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[1] Mr. Triffin is a trifle unjust when he accuses me of drawing from this "innocent and obvious" argument "ethical and political considerations of ominous importance" (p. 153). He forgets that it was not myself but Professor Chamberlin who wanted to elevate that "sinister group of individuals, the 'institutional monopolists', the owners of patent rights and of mineral springs" to the exalted position of being the sole perpetrators of monopolistic competition! My concern was, on the contrary, to push these gentlemen into the background. (Or can it be that Mr. Triffin has persuaded himself that the connection between *decreasing costs* and imperfect competition carries with it "ethical and political considerations of ominous importance"?)

[2] Cf. Hicks, "The Foundations of Welfare Economics," *Economic Journal*, December, 1939, pp. 696–712.

SHORTER NOTICES

A Hundred Years of Economic Development. By G. P. Jones and A. G. Pool. Duckworth. 1940. 420 pp. 18s.

History makes statistics, but statistics do not make history. This book is full of facts. It shows how the output of cotton has expanded in the past hundred years ; the growth of railway mileage ; the rise of real wages ; and whatnot. Its chapters contain excellent summaries of the facts about agriculture, bank amalgamations, shipping subsidies, and so forth. Any of these chapters, taken by itself, can be recommended as a quick introduction to the topic with which it deals. The topics themselves are comprehensive—transport, industry, agriculture, banking, industrial fluctuations, trade unions, social services, taxation, almost every department of economic life is included in its survey. And yet the book is an ideal example of the way history should not be written. It is a record of upward rising curves ; but it fails to catch the spirit of the period. What was its driving force ? Why did this enormous development occur in Britain and not in China ? In Britain in the nineteenth century and not in the seventeenth ? What lessons should we learn from this mass of facts and figures ? The authors seem to have decided in advance that it is no business of the historian to point the lesson. In consequence the book has no central theme to link its four hundred pages. It is dull, duller even than the average " political " history book. The authors deserve our thanks as much for a painstaking and comprehensive collection which we find useful for quick reference in the daytime, as for an addition to that literature which is useful to us for last minute reading in bed.

Men, Money and Markets. By M. R. Leys. Longmans, Green and Co. 1940. 266 pp. 6s.

" The purpose of this book is to introduce to ordinary people the study of modern problems of production, currency and finance," says the dustcover. It should prove specially useful to adult education classes. It has no adequate theory of prices or distribution ; but it is written descriptively rather than analytically, its language is easy and attractive, and it contains discussions of many topics in which an adult class will have special interest. It can be recommended as a useful introduction to economics.

The Bottlenecks of Business. By Thurman W. Arnold. Reynal and Hitchcock, New York. 1940. xi + 335 pp. $2.50.

This book was written on the fiftieth anniversary of the Sherman Act. Congress the year before had doubled the sums available for anti-trust work, and a vigorous campaign of enforcement had been put under way by Arnold, the Assistant Attorney General. On

Arnold centred the full fury of big business and trade unionists co-operating with big business, and this book is his answer to misrepresentations, and his statement of the purposes he seeks to achieve. It was written in an election year and bears clear signs of the desire to catch the farmer's vote. It has obvious defects. Mr. Arnold does not face squarely the contention that anti-trust legislation, however capable of preventing combinations between small firms, is inadequate to control the giant corporation; neither is his argument complete when he attempts to dispose of the case for increasing the administrative and reducing the judicial functions in anti-trust enforcement. Yet the merits of the book are striking. It is a simple statement for the American man in the street of what he is losing through the bottling up of the channels of distribution by business monopolists. It makes clear that the Sherman Act has not failed, but (as is alleged for Christianity) just never been seriously applied. In Theodore Roosevelt's day, the anti-trust division had only five lawyers; in the twenties the number never exceeded 25; not until 1938 did it reach 50; in 1939 it was 200. Those critics on this side of the Atlantic who glibly quote America as proof that anti-trust legislation is useless must think again; the commercial affairs of a large nation cannot be adequately policed by five men. The book shows too that, given funds and vigorous enforcement, the mere fear of prosecution sets many business men dissolving their restraints, and the savings to the pocket of the consumer are stupendous. For a detailed survey of the problems of anti-trust one must look elsewhere (nowhere better than to Hamilton and Till's superb monograph for the Temporary National Economic Committee, *Anti-Trust in Action*). But Arnold's book deserves attention as a good popular introduction to the aims and achievements of the new campaign.

Standards of Living, Wages and Prices. By H. Belshaw. Modern Books and New Zealand Institute of International Affairs. 1941. 48 pp.

The author of this pamphlet, who is Professor of Economics at Auckland University College, sets out to examine the changes in the standard of living in New Zealand during the past ten years, and the effect on it of the major economic policies of the New Zealand Labour government. With the aid of the relevant statistics the pamphlet discusses such matters as the trade of New Zealand, exchange control, the effect of guaranteed prices, the structure of income distribution, incidence of taxation, wage regulation, effects of public works on employment, and other aspects of the policy pursued by the Labour government. The pamphlet suffers from over-compression, which may make it a little too difficult for the layman and rather too sweeping in some of its generalisations for the specialist. Nevertheless it is a valuable addition to the literature of the attempts made by democratic governments in the thirties to improve the living standards of their populations. The pamphlet emphasises once more, what we have already seen in the Blum regime, the New Deal and the Swedish experiment, the tendency for such governments to clutch at the shadow and miss the substance. A comparative study of these regimes should be a compulsory study for prospective drafters of Labour programmes.

The Labour Situation in Great Britain, May–October, 1940. International Labour Office and P. S. King and Son, Ltd. 1941. 56 pp. 1s.

The period which this publication surveys is important because, following on the defeat of France and the fall of the Chamberlain government, it witnessed a real drive for the proper utilisation of labour, and included most of the important decisions that have been taken in this field since the war began. New training schemes, industrial transference, measures for industrial welfare and arbitration, wages policy—the most important orders were issued during this period. As an I.L.O. publication, this survey confines itself to a statement of what was done, and in excluding discussion of the effectiveness of policy, may give the impression that more was achieved than was actually the case. The record remains, however, a useful summary of much information which can otherwise only be gathered from scattered sources.

Studies in War Economics. International Labour Office and P. S. King and Son, Ltd. 1941. 199 pp. 4s.

This volume consists of a number of essays by members of the I.L.O. staff, some of the essays being reprints from the *Review*. E. F. Penrose writes on " Economic Organisation for Total War ", E. J. Riches on " An Analysis of the Keynes Plan " and " Relative Wages in Wartime ", A. S. J. Baster on " Control of Food Prices ", C. M. Wright on " The Place of Housing Policy in War Economy ", and E. T. Denhardt on " The Effect of War on the Relative Importance of Producing Centres, with special reference to the Textile Industry ". The essays record what is being done in various countries, and discuss some of the problems involved. The general level of the discussion is high. The last essay surveys in detail the effect of the war on the production of textiles in different countries all over the world, and deserves the attention of any one now thinking about the problems of international trade after the war.

A History of Economic Thought. By Erich Roll. Revised and enlarged edition. New York. Prentice-Hall, Inc. 1942. xii + 585 pp.

Professor Roll's *History of Economic Thought*, first published in this country in 1938, has now been published in America in a " revised and enlarged " form. The main additions, apart from a few extra pages on Ricardo and Pareto, are two extra chapters, one on American economics and particularly T. Veblen, the other on contemporary economic thought. Readers of the earlier edition will not be surprised that in this last chapter the author shows little sympathy for the modern developments of the theory of value, but considerable enthusiasm for the theory of imperfect competition and the New Political Economy of J. M. Keynes. As is almost inevitable in such a survey of contemporary developments, the new chapters show the personal preferences and dislikes of the author rather more strongly than the original work.

Lord Stamp 1880—1941. By J. H. CLAPHAM. From the *Proceedings of the British Academy.* Vol. XXVII. Humphrey Milford. 1942. 2s. 15 pp. Portrait.

James Bonar 1852—1941. By G. FINDLAY SHIRRAS. From the Proceedings of the British Academy. Humphrey Milford. 1942. 20 pp. 2s. 6d. Portrait.

In the first of these two memoirs the president of the British Academy gives a comprehensive though brief survey of the many-sided activities and personality of the late Lord Stamp. Professor Shirras' notice of the late James Bonar is similar to though much more detailed than that which appeared earlier from the same pen in the *Economic Journal.* The useful bibliography appended to it still suffers from the absence of an indication of the place of publication of articles which appeared elsewhere than in the *Economic Journal* and from several omissions : Not merely Bonar's only contribution to ECONOMICA (in the symposium "Who said 'barren metal'?", June, 1922), and his brief essay in the *Wirtschaftstheorie der Gegenwart*, vol. III, but also his pamphlet on *The Intellectual Virtues* (1894) and his article on " Home Trade and Foreign Trade ", *Scientia*, vol. IV, 1908 are missing.

Introduction to War Economics. By BROWN UNIVERSITY ECONOMISTS Irwin (Chicago). 1942. $1.25. 248 pp.

This is a useful collection of essays on various aspects of wartime economic problems. The essays are simply written and contain interesting facts, especially about what has been done in the United States. We venture only a few scattered comments. The statement (p. 7) that " our supply of money metals, almost $23 billion in gold and almost 2.5 billion ounces of silver, may be unearthed and spent for supplies from other nations " is startling. Which other nations ? The harm done to the war effort by " an influential group of economists, mainly Keynsians " who " were convinced that we could have both guns and butter " (p. 85), is evidence of how great men can be misunderstood. " The danger that crop curtailment " in order to raise farm prices " may be excessive " (p. 184) makes terrifying reading.

The dismissal of international migration as " not a practical solution " (p. 224) for any post-war problems is discouraging.

Geopolitik—Doctrine of National Self-Sufficiency and Empire. By JOHANNES MATTERN. Johns Hopkins University. Studies in Historical and Political Science. Series LX, number 2. 1942. 139 pp.

The reader of this small book will look in vain for even a concise treatment of the modern German geopolitical school and its chief theories and methods of analysis. The parts of the book which are nearest fulfilling this task are Chapter IV, in which the author analyses briefly the seven Ratzelian laws of the growth of historic states, and Chapters V and VI devoted to Rudolf Kjellen. In Chapter I, the author develops his own philosophy of history, a rather crude economic materialism. In Chapters II and III, he sketches briefly the antecedents of Geopolitik with impressive lists of books. Chapter VII is devoted to a very simplified historical discussion of the concept of the state as a biological organism. In the last two chapters the author studies the bearing of Geopolitik on the present struggle and the future peace. His tendency is to strike an equal balance between the belligerents, all of whom would seem to be guided by the views of their respective geopoliticians.

Books Received

AMERICAN ECONOMIC ASSOCIATION, SELECTED BY A COMMITTEE OF THE: *Readings in the Social Control of Industry.* The Blakiston Company, Philadelphia. 1942. viii, 494 pp. $2.75.

ATKINS, D.: *A Dimensional National Economy.* P. S. King & Staples Ltd. 1942. xiv, 228 pp. 17s. 6d.

BANK FOR INTERNATIONAL SETTLEMENTS: Twelfth Annual Report. 1st April, 1941—31st March, 1942. Hans Boehm-Schweiz, Basle. 1942. 222 pp.

BIDWELL, P. W.: *The British Tariff Movement.* American Council on Public Affairs, Washington. 1942. 133 pp. $2.50 cloth, $2.00 paper.

BIRMINGHAM SOCIAL SURVEY COMMITTEE: *Nutrition and Size of Family.* George Allen & Unwin Ltd. 1942. 50 pp. 2s. 6d.

BOWLEY, A. L.: *Studies in National Income.* N.I.E.S.R. Economic and Social Studies I. Cambridge University Press. 1942. ix, 255 pp. 15s.

BOWMAN, D. O.: *Public Control of Labor Relations.* The Macmillan Company, New York. 1942. xi, 504 pp. $5.00.

BURNHAM, J.: *The Managerial Revolution.* J. G. Putnam. 1942. 271 pp. 7s. 6d.

BURNS, C. M.: *Infant and Maternal Mortality.* 1942. viii, 247 pp. 5s.

Carr-Saunders, A. M., Mannheim, H., and Rhodes, E. C.: *Young Offenders*. Cambridge University Press. 1942. x, 168 pp. 7s. 6d.

Clapham, J. H.: *Lord Stamp, 1880–1941. Proceedings of the British Academy*, Vol. XXVII. Oxford University Press. 1942. 15 pp. 2s.

Crowe, S. E.: *The Berlin West-African Conference, 1884–1885*. Longmans, Green & Co. Ltd. 1942. x, 249 pp. 15s.

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Davis, H. O.: *America's Trade Equality Policy*. American Council on Public Affairs, Washington. 1942. x, 137 pp. $3.00 cloth, $2.50 paper.

De Félice, T.: *Gouvernements nationaux et accords internationaux*. Georg et Cir S.A., Geneva. 1942. 168 pp. Frs. 7.50.

Durbin, E. F. M.: *What Have We to Defend?* G. Routledge & Sons Ltd. 1942. 95 pp. 5s.

Economic and Financial Committees. Report to the Council on the Work of the Joint Session. League of Nations. G. Allen & Unwin Ltd. 1942. 23 pp. 1s.

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